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# OIL AND GAS DEVELOPMENTS IN PENNSYLVANIA IN 1973

William S. Lytle


COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU OF  
TOPOGRAPHIC AND GEOLOGIC SURVEY

Arthur A. Socolow, State Geologist

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by William S. Lytle

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PENNSYLVANIA GEOLOGICAL SURVEY

FOURTH SERIES

HARRISBURG

**1974**

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## ABSTRACT

Leasing for oil and gas exploration and development continued at a brisk pace during 1973. The two Medina (Lower Silurian) gas discoveries in southwestern Venango County caused a flurry of leasing from the discovery area northwest to Lake Erie, covering the northwestern corner of the State. Seismic activity was down from the 263 crew-weeks during 1972 to 161 crew-weeks in 1973 in 26 counties, with most of the activity being Vibroseis, costing the operators about \$2,400,000. Compared with 1972, oil well completions remained the same, but gas well completions increased 62 percent. Oil production decreased, whereas oil reserves, gas production and gas reserves increased. The price of new and stripper crude oil went up \$3.69 per barrel during the year, while a gas price increase continued to spread with prices ranging from 32 to 60 cents per Mcf.

The total number of highlight wells decreased from 86 in 1972 to 69 in 1973. The most active gas area was in Indiana County with 312 new wells, up 152 wells from 1972. Venango and McKean Counties were the most active oil areas with 205 and 126 wells drilled respectively.

Pennsylvania grade crude oil production amounted to 3,206,000 barrels, while production of Corning grade crude was 76,000 barrels or 2,000 barrels less than in 1972. Shallow gas production increased 7 percent to 66,713 MMcf, and deep gas was down 3 percent to 11,801 MMcf. Gas storage capacity increased to 783,450 MMcf, and stored gas reserves increased 7 percent to 647,041 MMcf.

Other wells completed, including service, gas storage and old well workovers, decreased 22 percent in 1973. The total of all wells reported in 1973 was up by 134 wells, or 11 percent greater than the 1972 total.

Of the 1,099 primary wells reported, 99 were exploratory and 1,000 were development. This is a 50 percent increase in exploratory wells and a 20 percent increase in development wells from 1972. Exploratory completions were 44 percent successful and development completions 96 percent successful.

Exploratory footage was up 57 percent and development footage 40 percent from that of 1972. The average depth of all wells was 2,327 feet, 369 feet deeper than in 1972.

Secondary and tertiary recovery projects remained active. The increase in the price of crude should make the Maraflood tertiary operation a profitable recovery process.

## INTRODUCTION

Progress Report 178, *Representative Gamma-ray Logs from Shallow and Deep Wells, Western Pennsylvania* should be referred to for stratigraphic information. This publication contains three shallow gamma-ray logs (two from the oil belt and one from the gas fields), and one deep gamma-ray log on which shallow and deep producing intervals have been designated.

Wells with good completions or of special note for other reasons in the Commonwealth in 1973 are commented on in Part I of this annual report. Part II contains the statistics and review of industry activities for the year, and Part III is the summarized records of the 1973 deep wells.

## ACKNOWLEDGEMENTS

The writer acknowledges the cooperation of the Bradford District Producers Association, the Pennsylvania Game Commission, the American Gas Association, the American Petroleum Institute, Petroleum Information, and the Pennsylvania Department of Environmental Resources Bureau of Land Protection and Reclamation (Oil and Gas Division) and Bureau of Forestry (Division of Minerals).

Appreciation is extended to operators and companies who released natural gas production statistics and other data.

## PART I. COMPLETION HIGHLIGHTS FOR 1973

### SHALLOW HIGHLIGHTS

The lower limits of initial production used in considering a shallow well (Upper Devonian or younger) as a highlight well were established at 50 bopd or more and/or over 2 MMcfcpd.

There were 68 shallow highlight wells reported in 1973. The decrease from 84 reported in 1972 was primarily due to the operators' failure to report the wells' initial production to the regulatory agency. The shallow highlight wells composed 6.2 percent of the total exploratory and development wells reported (Table 5). Table 1 gives highlight well statistics.

Figure 1 shows the distribution of the highlight wells. The following is a brief description of those highlight occurrences about which information was released through the Oil and Gas Division of the Bureau of Land Protection and Reclamation.

### Pre-Speechley Gas Development

The pre-Speechley (Upper Devonian Zone B) development gas play in the west-central part of the State increased considerably over that of 1972. In this area there were 405 gas wells drilled in a five-county area compared

to 239 drilled in 1972. Most of this increase in number of gas wells was in Indiana County. The number of highlight gas wells completed in this zone increased from 12 gas wells in 1972 to 29 in 1973. The following wells were completed with potentials in MMcfgpd: Clearfield County in the Grampian field 2.1, Salem pool 2.8 and 2.9; Indiana County in the Creekside field 2.4, Jacksonville 2.0, 2.4, Juneau 2.1, Lewisville 2.6, 2.8, Lochvale 2.1 (2), Marchand 2.2, Marion Center 3.0, 4.8, Plumville 2.0, 5.0, Richmond 2.0, 2.1, 2.2, 2.5, 2.6, Saltsburg 2.2, 2.7, Smicksburg 2.0, Warner Hill 2.6, Willet 4.4, 5.9; Jefferson County in the Juneau 2.6; and Westmoreland County in the Blairsville 2.0. No highlight gas wells from this zone were reported from other counties.

Figures 2, 3, 4, 5, 6 and 7 are concerned with natural-gas-producing zones in 6 wells and their production of natural gas since completion. These wells are located in the shallow gas fields of Armstrong, Indiana and Westmoreland Counties. The relative position of the producing sands can be seen in Figure 2. All of the sands except the Bayard Stray are in the Upper Devonian Canadaway Formation, whose stratigraphic position is just below the "Pink Rock" of the Conneaut Group, also Upper Devonian in age. The Bayard Stray occurs in the upper part of the Conneaut Group. The names of the producing sands shown on the illustrations are those given by the operators. The numbers on the logs in Figures 3 to 5 also appear in Figures 6 and 7, indicating the gas production curve for the particular well.

Four highlight oil wells were reported from this zone as follows, with potentials in bopd: McKean County, Lewis Run pool 65, 75, Cooper 75, and in Forest County, Dawson Run 50 (pre-Speechley and Speechley).

Table 1. *Shallow and Deep Highlight Well Statistics*

	1973			1972		
Fields with highlight wells	27			19		
Counties with highlight wells	8			7		
<i>Producing Zones</i>	Wells			Wells		
	<i>Gas</i>	<i>Oil</i>	<i>Total</i>	<i>Gas</i>	<i>Oil</i>	<i>Total</i>
Oriskany	1	0	1	0	0	0
Pre-Speechley in Zone B*	29	3	32	12	10	22
Speechley or younger in Zone B*	0	36	36	0	63	63
Zone D*	0	0	0	0	1	1
Totals	30	39	69	12	74	86

\* Zone of Upper Devonian rocks established in Progress Report 178

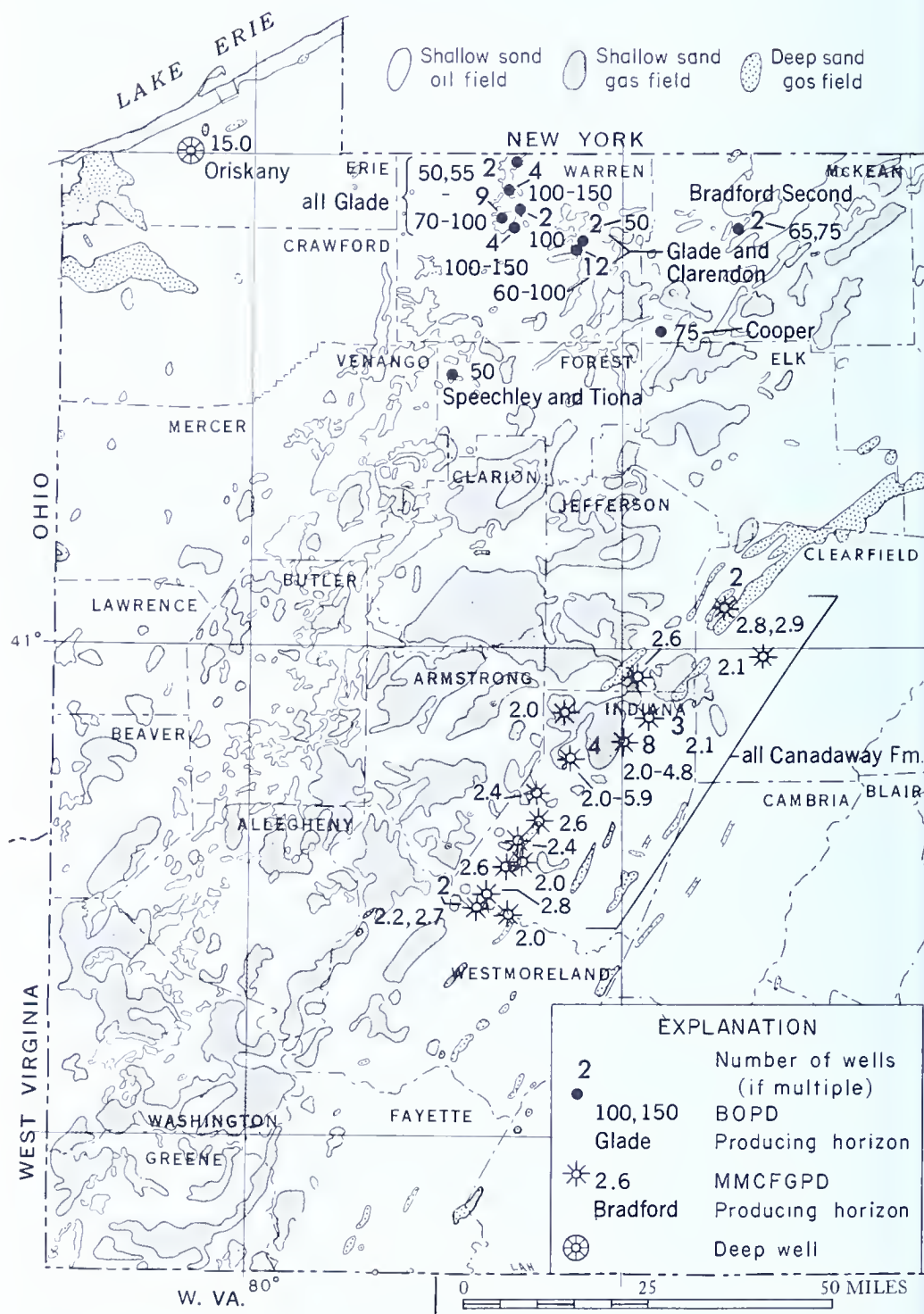


Figure 1. Highlight wells reported in 1973.

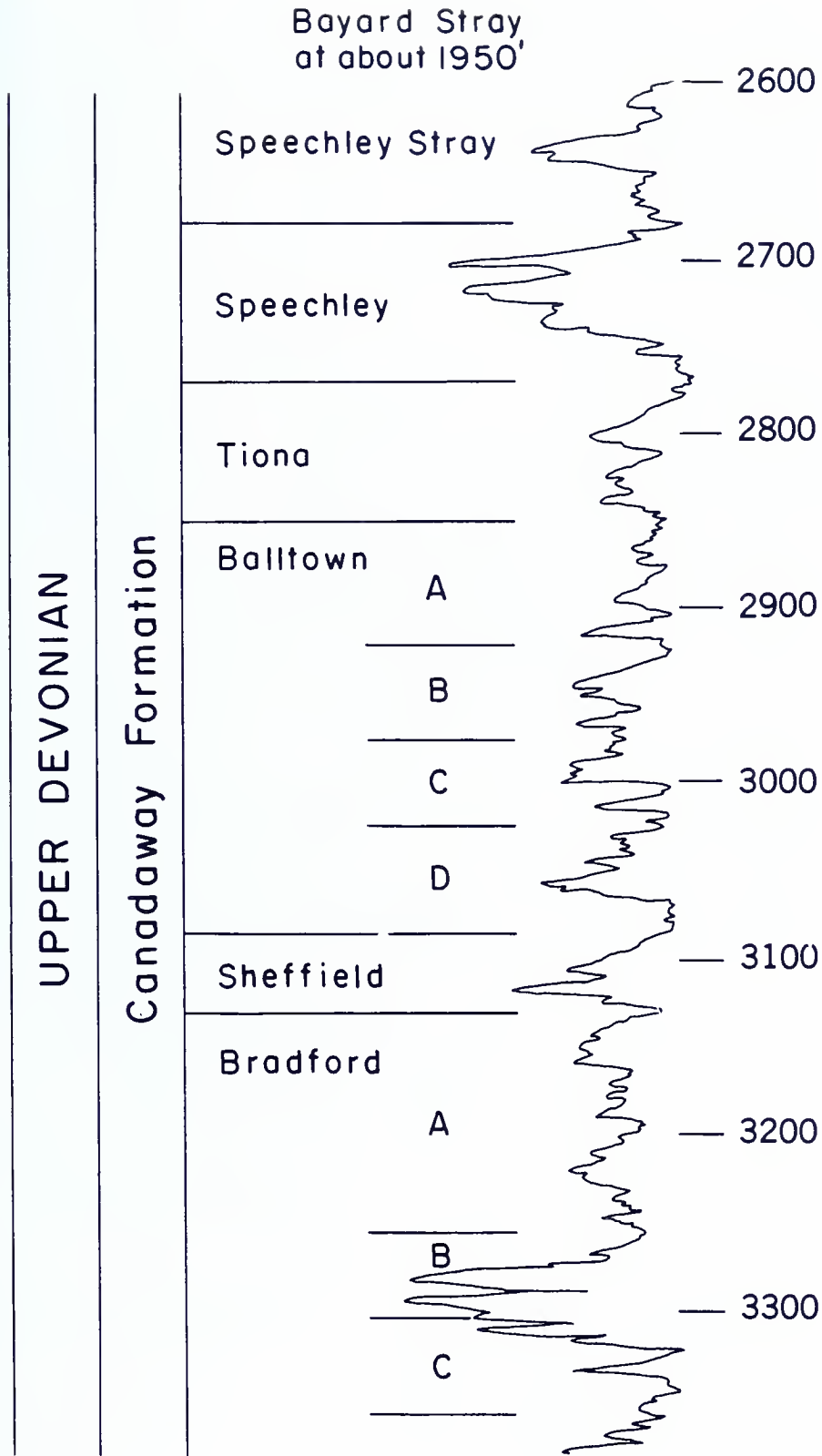


Figure 2. Composite section of gas sands with names used by operators (see Figures 3-7).



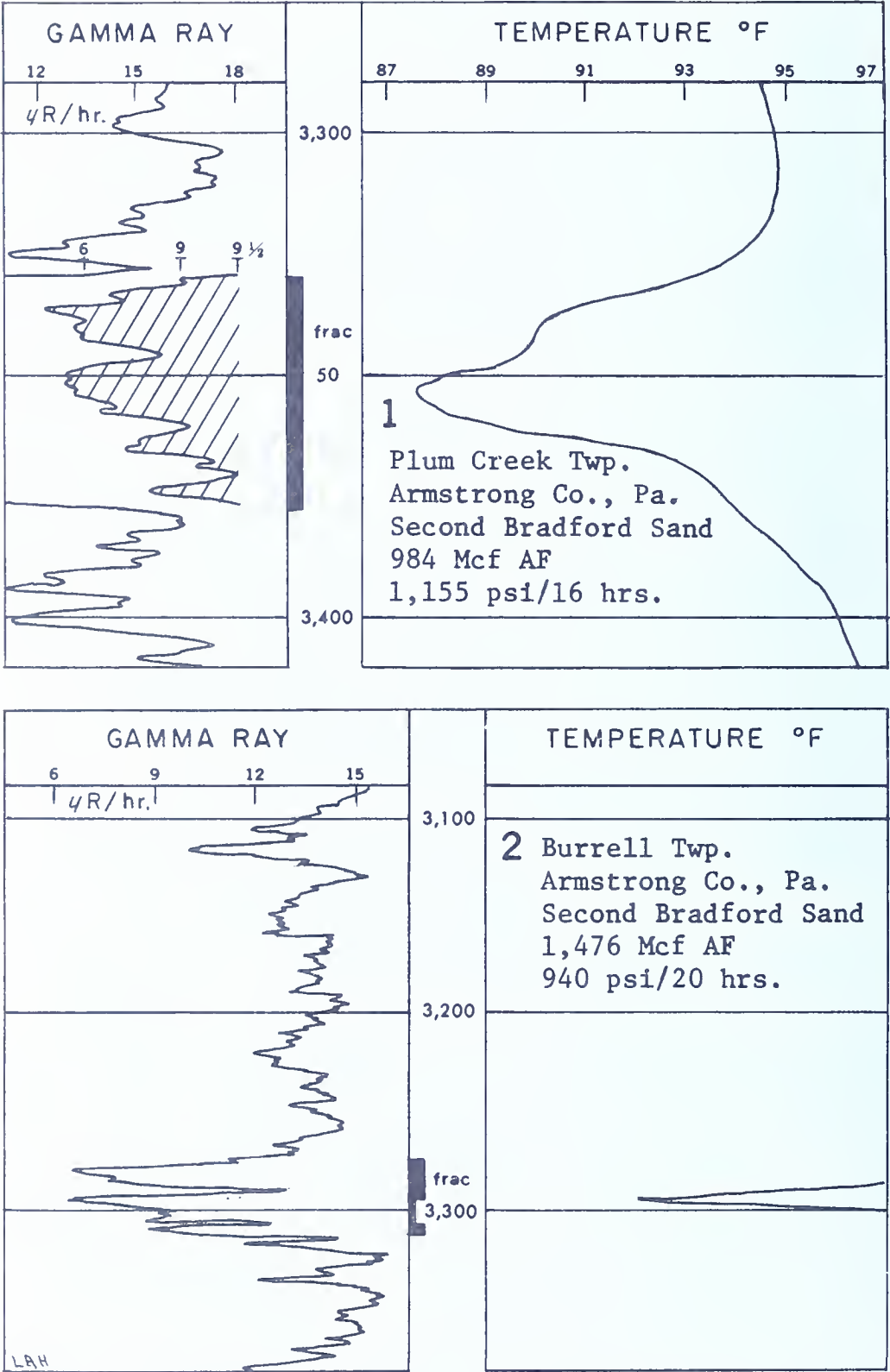


Figure 3. Mechanical logs of Armstrong County wells  
(also see Figures 2 and 6).

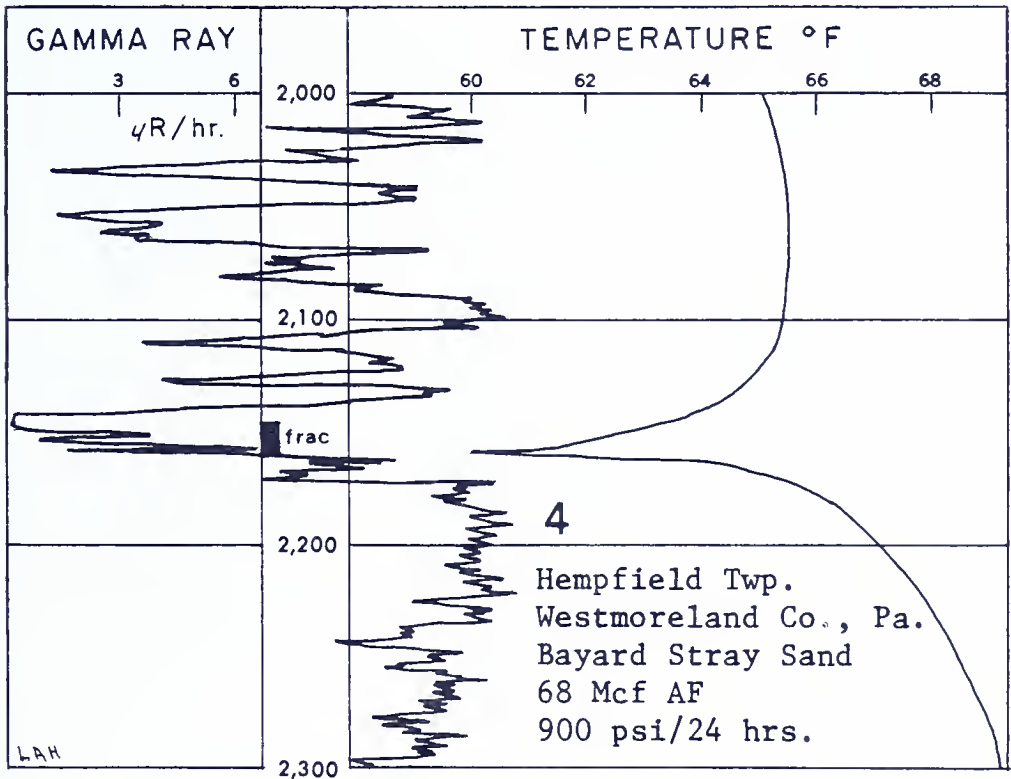
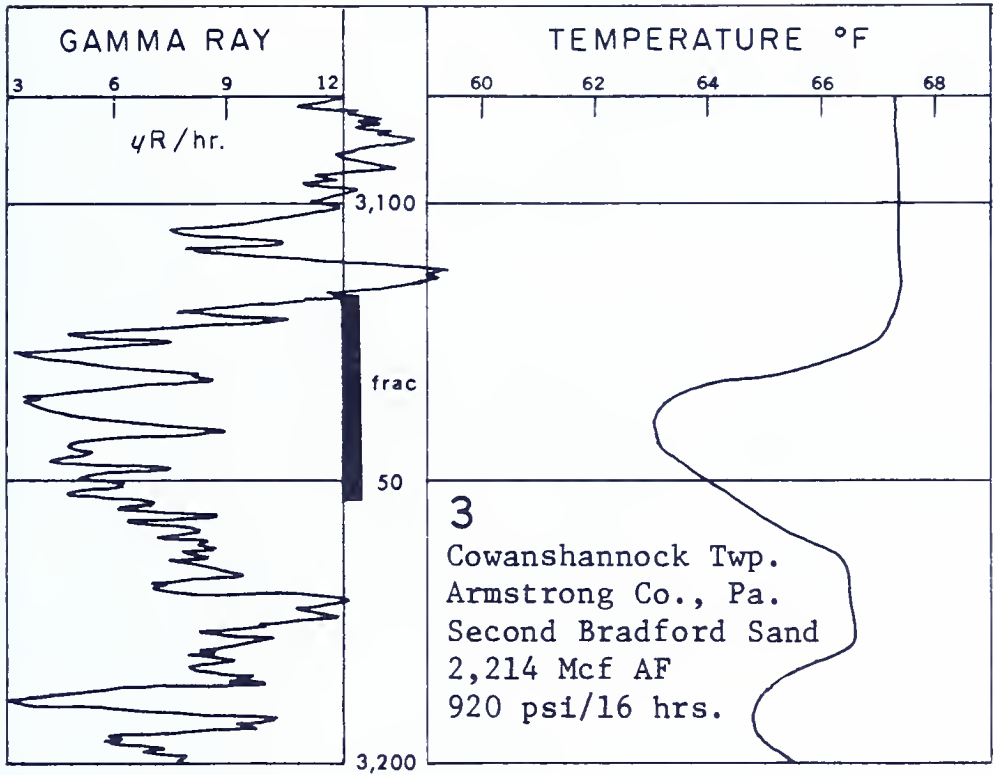


Figure 4. Mechanical logs of wells in Armstrong and Westmoreland Counties (also see Figures 2 and 7).

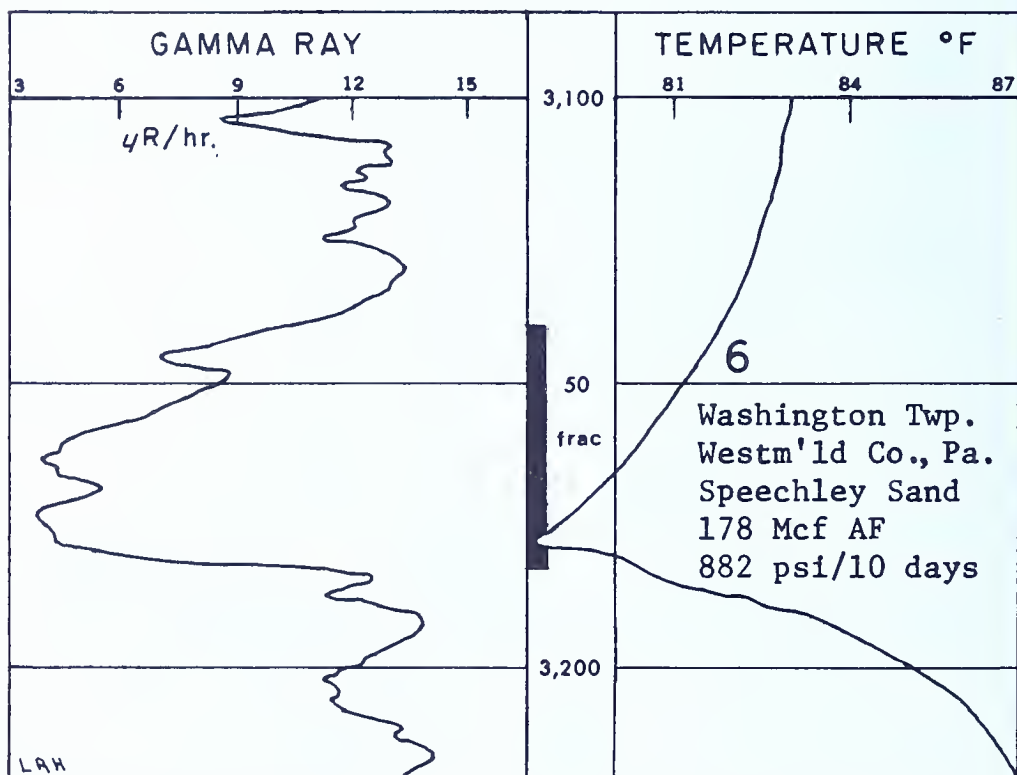
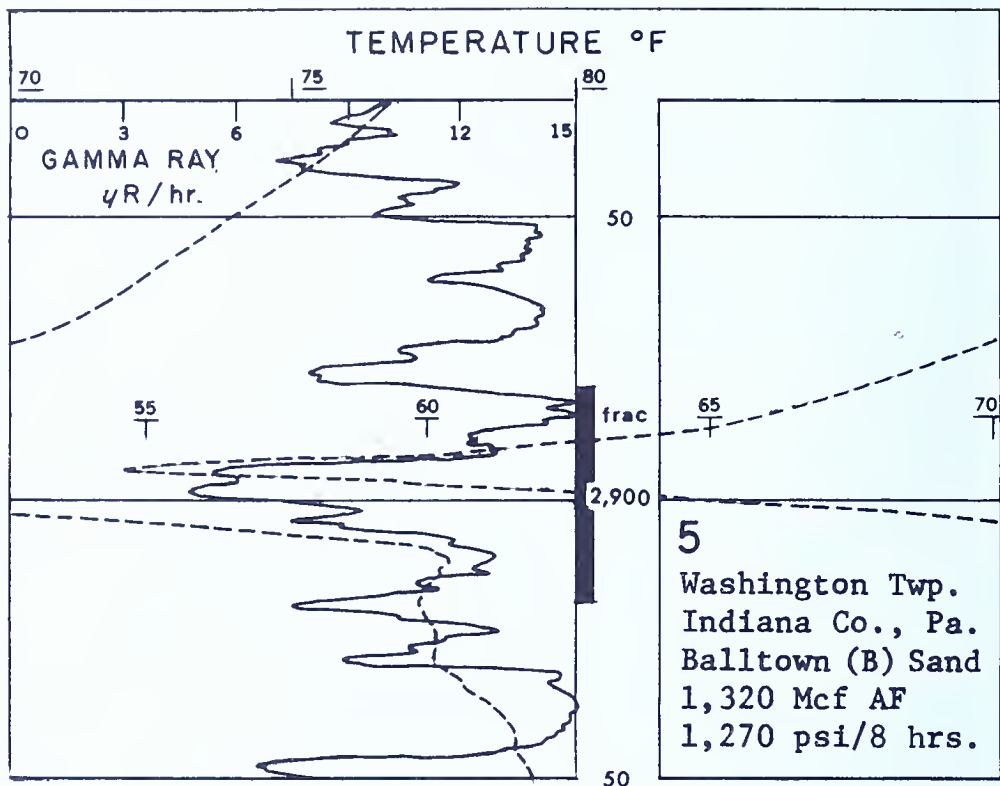


Figure 5. Mechanical logs of wells in Indiana and Westmoreland Counties (also see Figures 2, 6 and 7).



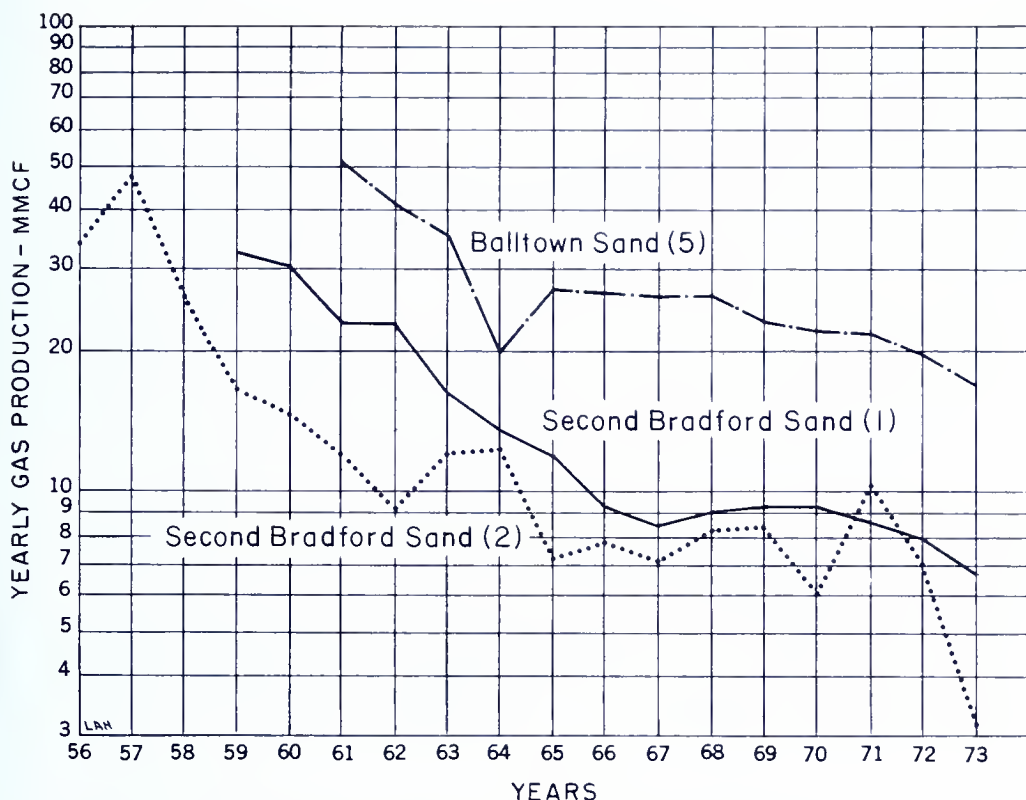


Figure 6. Production curves of wells whose mechanical logs are shown in Figures 3 and 5.

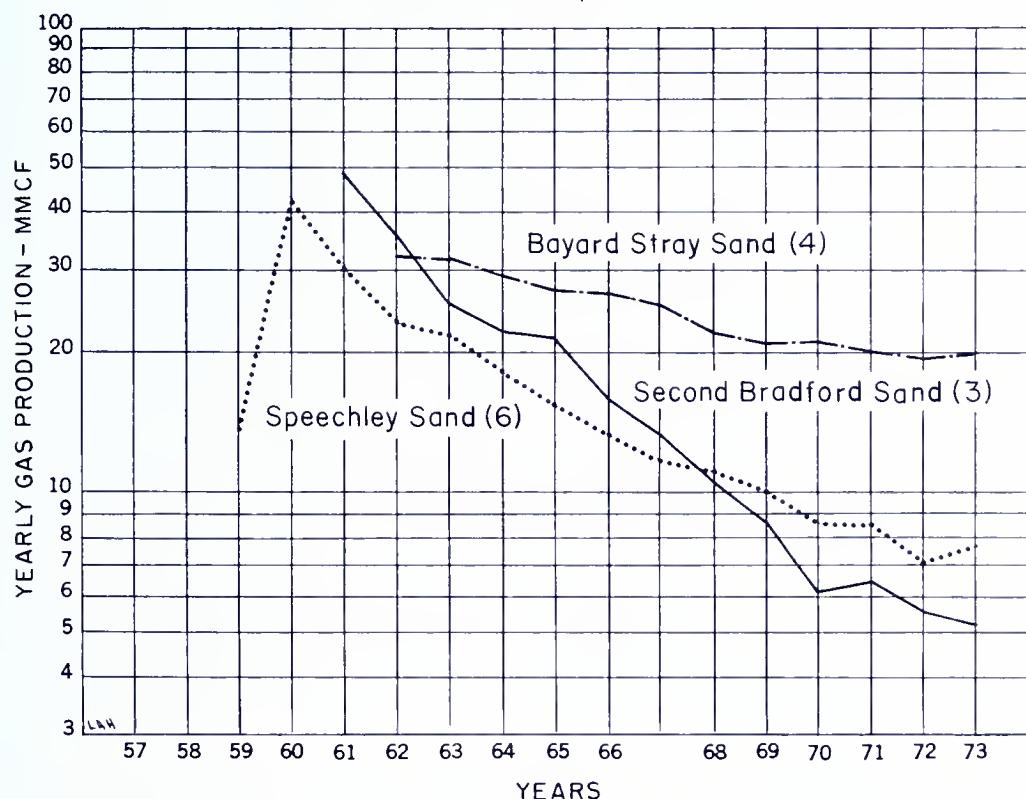


Figure 7. Production curves of wells whose mechanical logs are shown in Figures 4 and 5.

## Glade Sandstone Oil Development

The rest of the crude oil highlight wells (35 wells) are located in Warren County and produce from the Glade sand of the lower part of the Conneaut Group (Upper Devonian). Below are shown the fields in which the wells are located and their initial productions in bopd: Chandlers Valley with 4 wells 100 to 150, Glade with 2 wells 50, Irvine Run 100, Morrison Run with 12 wells 100, Sugar Grove 50, 55, Yankee-bush 100, Youngsville with 13 wells 70 to 150.

## DEEP HIGHLIGHTS

The lower limit for deep highlight wells is 10 MMcfcpd for a gas well and 50 bopd for an oil well.

The McKean field discovery (Figure 1; Figure 8, well 62) in Erie County was the only field with a deep highlight well. The discovery well, #1 Joseph R. McLaughlin, had a potential of an estimated 15 MMcfcpd from the Oriskany sandstone.

## PART II. OIL AND GAS INDUSTRY ACTIVITY FOR 1973 BASIS FOR STATISTICS

Local industry statistics herein reported are consistent with figures submitted to national industry organizations. Consequently, drilling and completion data are entirely based on drillers' records and location plats forwarded to the Pennsylvania Geological Survey by the Oil and Gas Division of the Bureau of Land Protection and Reclamation of the Department of Environmental Resources, the administrative and regulatory agency for the Oil and Gas Laws. Only those wells for which records and plats have been received within the year are reported. This includes wells drilled in prior years for which records were submitted and received in 1973. It does not include 1973 wells completed for which records had not been submitted within the year.

Oil production and reserve data were obtained from the American Petroleum Institute and gas production and reserve data were obtained from the American Gas Association.

## PREVIOUS COMPILATIONS

The summarized records of deep wells (those which reach rocks of Middle Devonian age or older) are shown in Table 14 and the locations of all exploratory wells are on Figure 8 (centerfold). For those deep wells drilled prior to 1950, the summarized records and other information on the Commonwealth's oil and gas activities are to be found in Mineral Resource Report 31 (Pennsylvania Geological Survey). Similar informa-

tion for the 1950 to 1954 period was published in Mineral Resource Report 39, and for the 1955 to 1959 period in Mineral Resource Report 45. For the years 1960 through 1971, this information was published annually in Progress Reports 158, 160, 165, 166, 168, 172, 173, 175, 177, 181, 183, 184 and 186 of the Pennsylvania Geological Survey. Oil and gas developments in the shallow sands (Upper Devonian or younger) are described in Mineral Resource Report 45 and in Progress Reports 135, 139, 143, 144, 147, 150, 151, 154, 155, 157, 158, 160, 165, 166, 168, 172, 173, 175, 177, 181, 183, 184 and 186.

A list of deep-well samples on file with the Survey was published in the Survey's *Catalogue of Deep Well Samples and Geophysical Logs to January 1, 1959* (W. R. Wagner, Inf. Circ. 16). Supplemental lists were published in Progress Reports 157, 158, 160, 165, 166, 168 and 173. These and other deep and shallow well samples, geophysical logs, and other well data are also on file with the Survey. An inventory of all deep and shallow well samples is brought up to date annually. It is available on request at cost of reproduction from the Survey's Pittsburgh office.

### INDICATED STATUS OF LOCAL INDUSTRY

Oil well completions, 516 in 1973, remained about the same as 1972 with 518. Pennsylvania Grade crude oil production decreased 5 percent, and oil reserves increased 6 percent to 38,837,000 barrels. The API committee increased the crude oil reserves for some areas in the Commonwealth for the following reasons: 1) price increase, 2) greater activity, and 3) stabilization of production, Bradford District. Corning Grade crude oil production declined to 76,000 barrels.

Gas well completions increased 62 percent, from 297 wells in 1972 to 482 wells in 1973. Completion of wells classified as oil and gas wells declined 44 percent, from 16 in 1972 to 9 in 1973. Reserves of gas increased 6 percent, while production increased 6 percent. The amount of gas in storage increased 7 percent.

### Drilling and Completions

The breakdown of completions by county is shown in Table 2, and the old wells drilled deeper in Table 3.

Table 4 shows that drilling for oil and gas increased 22 percent in 1973 over that in 1972. During the year exploratory and development drilling increased 50 and 20 percent respectively from those of 1972, as shown on Table 5.

The total footage in 1973 was up 40 percent with respect to the amount drilled in 1972 (Table 6).

Table 2. Well Completions in Pennsylvania, 1973\*

County	TOTAL			GAS			OIL			OIL & GAS			DRY		
	No. of Wells	Aver. Total Depth (feet)	Aver. Total Depth (feet)	No. of Wells	Open-Flow (Mc/gpd)	Aver. Total Depth (feet)	No. of Wells	Produc- tion (bopd)	Aver. Total Depth (feet)	No. of Wells	Open-Flow (Mc/gpd)	Aver. Total Depth (feet)	No. of Wells	Produc- tion (bopd)	Aver. Total Depth (feet)
Armstrong	37	3,862	3,862	37	812	3,862	0	0	0	0	0	0	0	0	0
Bedford	1	11,597	0	0	0	0	0	0	0	0	0	0	1	11,597	0
Bradford	2	7,669	0	0	0	0	0	0	0	0	0	0	2	7,669	0
Butler	4	1,752	2,150	2	88	2,150	2	2	1,355	0	0	0	0	0	0
Cambria	4	4,003	4,001	3	778	4,001	0	0	0	0	0	0	1	4,009	0
Cameron	5	6,679	6,708	2	1,059	6,708	0	0	0	0	0	0	3	6,660	0
Clarion	3	2,830	1,037	1	220	1,037	0	0	0	1	1,000	1,000	1	6,452	0
Clearfield	29	3,569	3,616	21	833	3,616	0	0	0	0	0	0	8	3,445	0
Crawford	10	3,762	3,943	3	667	3,943	1	1	770	5	150	4,198	1	4,030	0
Elk	20	3,340	3,715	10	422	3,715	2	19	1,744	0	0	0	8	3,270	0
Erie	6	3,037	4,121	2	8,107	4,121	0	0	0	0	0	0	4	2,496	0
Fayette	1	4,513	0	0	0	0	0	0	0	0	0	0	1	4,513	0
Forest	95	1,045	1,599	6	104	1,599	82	**	825	3	679	1,814	4	4,145	0
Fulton	1	3,572	0	0	0	0	0	0	0	0	0	0	1	3,572	0
Indiana	317	3,630	3,623	312	1,004	3,623	0	0	0	0	0	0	5	4,057	0
Jefferson	25	3,592	3,442	21	732	3,442	0	0	0	0	0	0	4	4,382	0
McKean	149	1,833	2,439	10	209	2,439	126	**	1,690	0	0	0	13	2,747	0
Mercer	3	3,966	5,335	1	454	5,335	1	10	904	0	0	0	1	5,660	0
Potter	6	6,577	0	0	0	0	0	0	0	0	0	0	6	6,577	0
Somerset	1	9,800	0	0	0	0	0	0	0	0	0	0	1	9,800	0
Susquehanna	1	8,534	0	0	0	0	0	0	0	0	0	0	1	8,534	0
Tioga	4	5,396	0	0	0	0	0	0	0	0	0	0	4	5,396	0
Venango	217	919	5,454	4	2,243	5,454	205	**	803	0	0	0	8	1,627	0
Warren	97	968	0	0	0	0	95	48	971	0	0	0	2	837	0
Washington	2	4,024	4,566	1	1,480	4,566	0	0	0	0	0	0	1	3,482	0
Westmoreland	14	3,547	3,547	14	603	3,547	0	0	0	0	0	0	0	0	0
TOTAL	1,054	2,395	3,611	450	946	3,611	514	**	1,061	9	421	3,048	81	4,031	0

\* Does not include service wells, miscellaneous wells, gas storage wells, stratigraphic/core tests or old wells drilled deeper.

\*\* Initial productions for majority of wells not given.

Table 3. Old Wells Drilled Deeper in Pennsylvania, 1973

County	TOTAL			GAS			OIL			DRY		
	No. of Wells	Aver. Amt. (feet)	No. of Wells	Aver. Init. (Mc/gpd)	Aver. Amt. Deepened (feet)	No. of Wells	Aver. Init. Production (bopd)	Aver. Amt. Deepened (feet)	No. of Wells	Aver. Amt. Deepened (feet)	No. of Wells	Aver. Amt. Deepened (feet)
Armstrong	9	1,078	6	173	1,536	0	0	0	3	0	3	163
Clarion	2	88	1	565	100	0	0	0	1	0	1	77
Clearfield	1	2,244	1	581	2,244	0	0	0	0	0	0	0
Elk	4	342	1	818	469	0	0	0	3	0	3	299
Fayette	1	1,285	1	15	1,285	0	0	0	0	0	0	0
Indiana	17	864	14	951	1,029	0	0	0	3	0	3	93
Jefferson	6	537	5	551	633	0	0	0	1	0	1	57
McKean	2	885	0	0	0	2	14	885	0	0	0	0
Westmoreland	3	2,060	3	738	2,060	0	0	0	0	0	0	0
TOTAL	45	903	32	666	1,158	2	14	885	11	885	11	164

Table 4. Drilling and Completions Reported, 1973

Classification		1973		1972		% Change	
SHALLOW	New	Gas	432	514	4	262	+ 65
		Oil				517	0
		Oil & Gas				14	- 71
		Dry		45		39	+ 15
		Total			995	832	+ 20
SHALLOW	Deepened	Gas	32			13	+ 146
		Oil		2		1	+ 100
		Dry		11		5	+ 120
		Total			45	19	+ 137
	Sub Total	Gas	464	516	4	275	+ 69
DEEP		Oil				518	0
		Oil & Gas				14	- 71
		Dry		56		44	+ 27
		Total			1040	851	+ 22
	Deepened & New	Gas	18			22	- 18
PRIMARY		Oil & Gas		5		2	+ 150
		Dry		36		26*	+ 38
		Total			59	50	+ 18
		Gas	482	516		297	+ 62
		Oil				518	0
SUB TOTAL		Oil & Gas		9		16	- 44
		Dry		92		70	+ 31
		Total			1099	901	+ 22
	Misc.	Service (Gas & Water Injection Wells)			43	55	- 22
TOTAL ALL WELLS		Gas Storage			14*	26	- 46
		Old Well Workovers			165	205	- 20
					1321	1187	+ 11

\* Includes 2 old wells drilled deeper



Table 5. Exploratory and Primary Development Reported, 1973\*

Type Well	1973		1972	% Change
Exploratory	Gas	41	20	+ 105
	Oil	3	3	0
	Dry	55	43	+ 28
	Total (% Successful)		99 (44%)	66 (35%) + 50
Development	Gas	441	277	+ 59
	Oil	513	515	0
	Dry	37	27	+ 37
	Oil & Gas	9	16	- 44
Total (% Successful)			1000 (96%)	835 (97%) + 20
Totals	Gas	482	297	+ 62
	Oil	516	518	0
	Dry	92	70	+ 31
	Oil & Gas	9	16	- 44
Grand Total (% Successful)			1099 (92%)	901 (92%) + 22

\* Above figures include old wells drilled deeper

Table 6. Footage Reported, 1973 and 1972\*

No. of Wells	1973 Class	Footage		% Change	Average Ft. Per Well	
		1973	1972		1973	1972
99	Exploratory	431,206	275,145	+57	4,356	4,169
1000	Development	2,133,604	1,529,065	+40	2,134	1,831
43	Service & Strat.	69,189	76,746	-10	1,609	1,395
1142	<i>SUB TOTAL</i>	2,633,999	1,880,956	+40	2,306	1,968
14	Gas Storage	55,455	41,363	+34	3,961	1,591
1156	<i>TOTAL</i>	2,689,454	1,922,319	+40	2,327	1,958

\* Above figures include old wells drilled deeper

The 1973 reported discoveries are listed in Table 7 and selected reported exploratory failures are listed in Table 8. The locations of all of the exploratory tests are shown in Figure 8. In Tioga County number 10 is the location of a proposed deep wildcat whose tools were lost at a shallow depth, and the rig was skidded and number 76 was drilled. Figure 9 is a graph of the annual rate of shallow activity in the Commonwealth from 1950 to 1973, while Figure 10 shows the annual rate of deep exploration and development from 1930 to 1973.

At the end of 1973 a total of 3,227 deep wells had been drilled since the beginning of exploration in the deeper horizons. Of the 3,227 deep wells, 1,727 were gas wells, 137 oil and gas wells, 1,140 dry holes, 217 gas storage wells, 4 for waste disposal, and 2 for testing drilling equipment.

### Production and Reserves

As shown in Table 9, oil production declined and gas production increased during the year. The portion of gas stored increased 7 percent from that of 1972.

The 3,206,000 barrels of Pennsylvania Grade crude had a value of about \$18,863,858. The 76,000 barrels of Corning Grade crude oil was produced from the Medina sandstone (Lower Silurian) mostly in Crawford County. This oil had a value of about \$363,550. The increase in the price of all crudes during the latter part of the year should stimulate the search for new oil and the development of primary and tertiary recovery projects during 1974 if the price is not rolled back. Crude production during 1974 should equal that of 1973.

The Bradford District again produced more crude oil than the combined production of the other districts in the State (Table 10). Table 11 shows by counties the number of producing oil wells and the crude oil production for 1972.



Figure 11 shows the annual production of crude oil in Pennsylvania from 1859 to 1973 and in the Bradford District from 1871 to 1973. The monthly variation in crude oil price, production and well completions is plotted in Figure 12 for the years 1930 to 1973 for the Bradford District.

At the end of 1973, there were approximately 16,800 producing gas wells in the Commonwealth. The 78,514,000 Mcf of shallow and deep gas shown in Table 9 had a value of about \$32,975,880. Figure 13 shows the following for the years 1946 to the present: (1) the yearly production of natural gas, (2) the yearly consumption of natural gas, (3) the natural gas reserves, and (4) the amount of natural gas in storage. The deep gas production by field and pool is shown in Table 12.

### Gas Storage Fields

There were 14 wells drilled for gas storage during the year. Of these 14 wells, 8 were deep wells, 4 shallow, and 2 deep gas storage wells drilled deeper. Several storage wells were worked over during the year. Storage well drilling activity was down 46 percent from that of 1972. Figure 8 of Progress Report 186 shows the distribution and lists the names of the current gas storage fields in Pennsylvania.

Storage capacity increased during the year to 783,450 MMcf compared to 763,183 MMcf in 1972. The total gas in storage on December 31, 1973 was 647,041 MMcf or 7 percent more than the amount stored on December 31, 1972. The gas in storage consisted of 32,965 MMcf of native gas and 614,076 MMcf of stored gas.

### Secondary and Tertiary Recovery Projects

There were 43 water or gas injection wells completed during the year, down 22 percent from those completed in 1972. In McKean County 126 oil wells were completed, most of them in secondary recovery projects. The waterfloods in McKean County continue to produce the largest part of Pennsylvania's yearly crude oil production.

The two Marafloods continue to operate in Pennsylvania. The Warren County project in the First Venango sand is still in the experimental stage. The McKean County project in the Bradford Third sand continues into its fifth year. With the increase in the price of crude oil this project should now be economical. This type of flood should have wide acceptance in the Bradford field over the next few years as more of the experimental data are released and the materials used in the flood become less expensive.

Table 7. Reported Discoveries in Pennsylvania, 1973

Map No.	County	Operator Well No. & Lease	Compl. Date M-Day-Y	Total Depth (Ft.)	Name of Formation at T. D.	Prod. Depth (Ft.)	Prod. Formation or Zone	Initial Daily Prod.	Field or Pool Name	Explor. Class	Remarks
53	Cambria	Peoples Nat. Gas Co. 1 Luella M. Crawford	6/ 7/73	3,996	Canadaway Group	3,509	Canadaway Group	678 Mcf	Colver Pool	SPD	Shallow pool discovery in Pindleton field.
55		Peoples Nat. Gas Co. 2 Joseph Gabany	7/13/73	4,001	Canadaway Group	3,878	Canadaway Group	959 Mcf	South Fork Field	NFD	Shallow field discovery on Ebensburg anticline.
52		Peoples Nat. Gas Co. 1 George Lowmaster	6/18/73	4,006	Canadaway Group	3,117	Canadaway Group	696 Mcf	Benedict Pool	NPD	New pool discovery in Carrolltown field.
92	Cameron	Con. Gas Sup. Corp. 1 Emporium Water Co.	8/ 4/73	6,525	Helderberg	2,027	Canadaway Group	168 Mcf	Salt Run Pool	SPD	Shallow pool discovery in East Emporium field, Sabinsville anticline.
91		Linn, & Patrick Pet. 1 Pa. Tract 189	8/24/73	6,890	Helderberg	6,847	Oriskany	1,950 Mcf	Canoe Run Field	NFD	Discovery on south flank of Sabinsville anticline.
31	Clearfield	Con. Gas Sup. Corp. 1 Jas. Mitchell Est.	7/11/73	3,496	Canadaway Group	2,956	Canadaway Group	231 Mcf	Irish Run Pool	SPD	Shallow pool discovery in Punxsutawney-Driftwood field.
27		Mann, C. L. 1 U. C. & Mina Miles	12/16/72	3,412	Canadaway Group	3,346	Canadaway Group	400 Mcf	Troutville Pool	NPD	New pool discovery in Big Run field.
94		Texaco, Inc. 1 Gen. Refractories	3/30/73	8,032	Helderberg	8,005	Oriskany	2,196 Mcf	W. Decatur Field	NFD	Discovery on south flank of Laurel Hill anticline.
89	Elk	Fairman Drilling Co. 1 Sylva (Pa. Game)	9/20/73	8,202	Salina	6,492	Bass Island	531 Mcf	Boot Jack Pool	DPD	Deeper pool discovery in the Horton field on the Hebron anticline.
90		Linn, E. H. et al 1 UNG-Stackpole	11/ 7/72	6,462	Helderberg	6,414	Helderberg	396 Mcf	Benzinger Field	NFD	Discovery on south flank of Harrison anticline.

100	Erie	Linn, E. H. et al 1 Joseph Orschek	9/17/72	6,055	Gatesburg	3,437	Medina Group	1,214 Mcf	Bull Reser. Field	NFD	Medina discovery in northwestern Pennsyl- vania.
62		Pennsylvania Gas Co. 1 Jos. R. McLaughlin	1/19/73	2,187	Oriskany	2,187	Oriskany	15,000 Mcf	McKean Field	NFD	Oriskany discovery in northwestern Pennsyl- vania.
37	Indiana	J & J Enterpr., Inc. 1 Dickey Lumber Co.	11/ 8/72	3,357	Canadaway Group	3,206	Canadaway Group	1,186 Mcf	Lockvale Pool	NPD	New pool discovery in Big Run field.
39		J & J Enterpr., Inc. 1 A. Tate	3/21/73	3,759	Canadaway Group	3,678	Canadaway Group	1,644 Mcf	Arcadia Pool	NPD	New pool discovery in East Run field on south flank of Chest- nut Ridge anticline.
42		Peoples Nat. Gas Co. 1 Vernon Kirkland	11/25/72	3,816	Canadaway Group	3,367	Canadaway Group	381 Mcf	Tanoma Pool	NPD	New pool discovery in Kintersburg field.
43		Peoples Nat. Gas Co. 1 Musser Forests	11/14/73	3,416	Canadaway Group	3,228	Canadaway Group	381 Mcf	Onberg Pool	NPD	New pool discovery in Indiana field.
51		T. W. Phillips G & O 1 William W. Platt	6/ 9/73	3,751	Canadaway Group	3,670	Canadaway Group	952 Mcf	Smith Pool	NPD	New pool discovery in Blairsville field.
7	McKean	Porterfield Petro. 1 Pa. Gas Tract 5570	6/11/73	2,001	Canadaway Group	1,646	Canadaway Group	500 Mcf	Whiting Run Pool	NPD	New pool discovery in White Gravel field.
13	Venango	Cinco Oil Co. G-1 Johnson & Reed	2/21/73	2,014	Canadaway Group	1,816	Canadaway Group	50 Mcf	Allender Run Pool	DPD	Deeper pool discovery in Pithole-Cashup field.
82		Peoples Nat. Gas Co. 1 William F. Duncan	4/ 5/73	6,720	Queenston	6,593	Medina Group	5,600 Mcf	Duncan Pool	DPD	Deeper pool discovery in Barkeyville field.
81		Peoples Nat. Gas Co. 1 Tasa Corporation	12/ 1/72	6,510	Queenston	6,414	Medina Group	2,740 Mcf	Irwin Pool	DPD	Deeper pool discovery in Westley field.
57	Westmoreland	Lechner Gas & Oil 2 Rhodes, R & H	11/17/72	1,960	Big Injun	1,760	Big Injun	200 Mcf	Turkeytown Pool	SPD	Shallower pool dis- covery in West New- ton field.
58		Peoples Nat. Gas Co. 1 Donald G. Leeper	8/23/73	4,000	Canadaway Group	2,620	Fifty Foot	1,205 Mcf	Sheppler Hill Pool	DPD	Deeper pool discovery in Webster field.

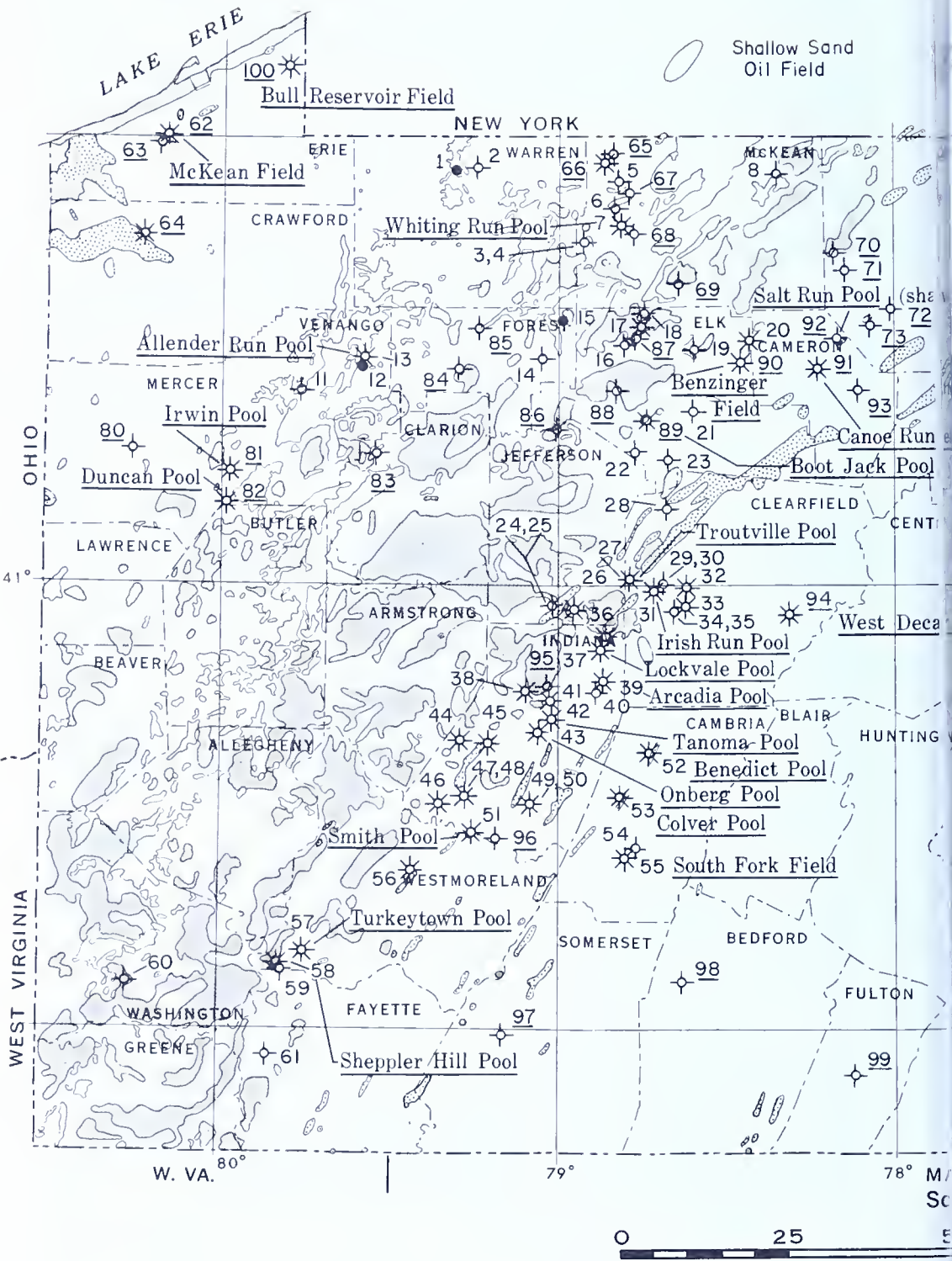


Figure 8. Oil and gas map of West Virginia and surrounding areas.

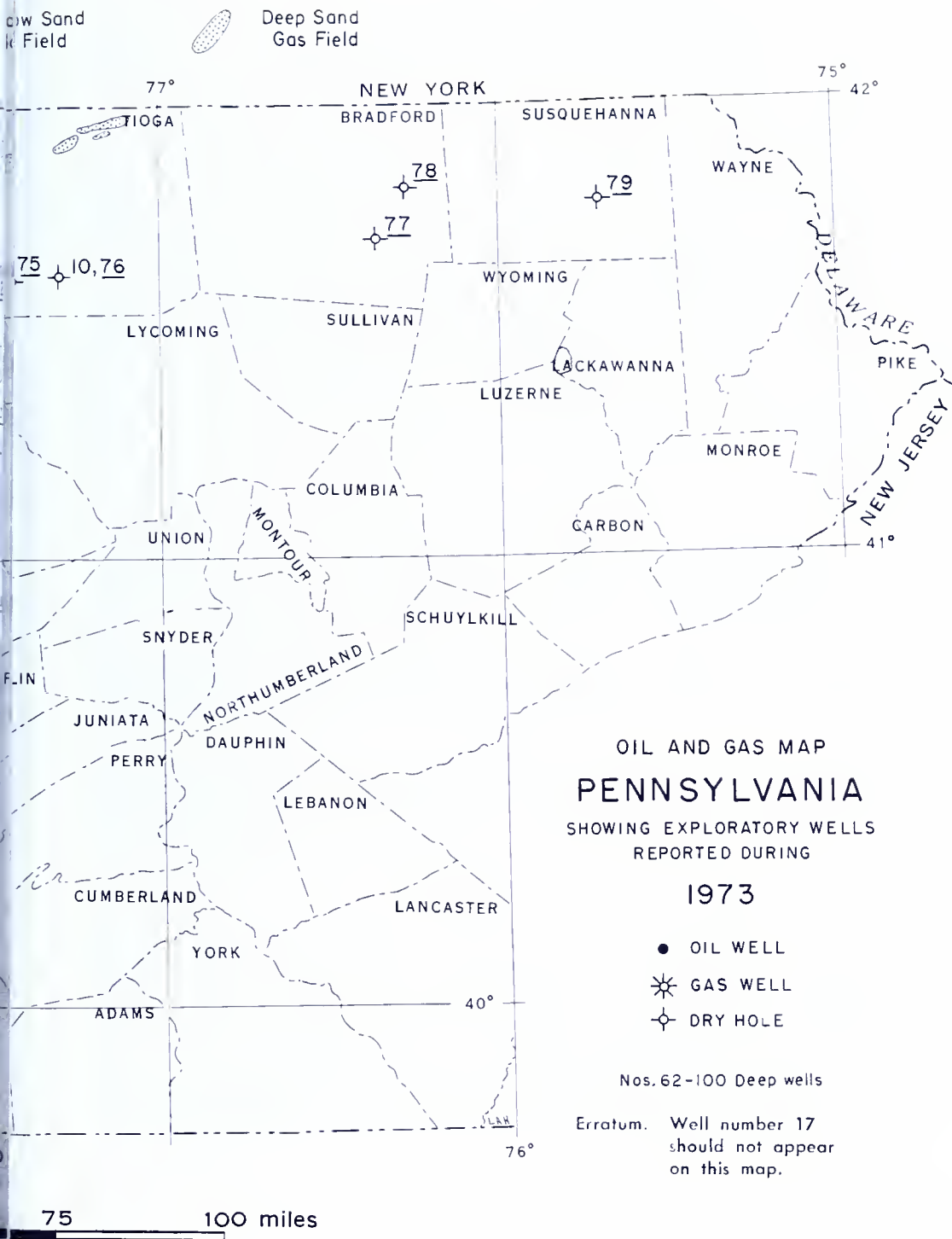




Table 8. Selected Exploratory Failures Reported in Pennsylvania, 1973

Map No.	County	Operator Well No. & Lease	Compl. Date M-Day-Y	Total Depth (Ft.)	Name of Formation at T. D.	Explor. Class or Field	Remarks
98	Bedford	Texas Eastern Trans. Corp. 1 Ruie S. Taylor, et al Shell Oil Company 1 Henry Comiskey Unit Shell Oil Company 1 Ralph Kissell Unit Consolidated Gas Sup. Corp.	7/11/72 7/ 7/73 9/ 1/73 9/27/73	11,597 7,830 7,507 6,525	Beckmantown Dolomite Silurian Salt Oriskany Helderberg	NFW NFW NFW NFW	Drilled on Schellsburg dome.  Drilled on north flank of Towanda anticline. Tested Oriskany south of the Towanda anticline. Tested Oriskany on Marshlands anticline.
83	Clarion	Wm-1300 Pa. Tract 211 Earl H. Linn, et al 1 W. B. Dunn-UNG Co.	3/11/73	6,452	Lockport	DPW	Rank Lockport wildcat.
21	Elk	Lenhart & Bennett, Inc. 1 Cochran-Bates	5/22/73	3,025	Canadaway	NFW	Rank wildcat tested Upper Devonian sands.
17		Lenhart & Bennett, Inc. 1-4279 Dan Forth	5/ 4/73	3,025	Canadaway	NFW	Rank Upper Devonian wildcat.
88		Earl H. Linn, et al 1 Pennsylvania Gas-ANF	2/20/73	6,055	Silurian Salt	DPW	Tested Upper Silurian in Bear Creek field.
87		Earl H. Linn 1 UNG-ANF	11/26/72	6,310	Silurian Salt	DPW	Tested Upper Silurian on Smethport anticline.
61	Fayette	Peoples Natural Gas Co. 1 C. M. Gray, Jr.	9/10/73	4,513	Canadaway	NPW	New pool wildcat in Antrim field.
84	Forest	Earl H. Linn 1 Collins-Clinger	5/11/73	6,855	Queenston	DPW	Medina test along Oriskany pinchout. Oriskany absent.
99	Fulton	Consolidated Gas Sup. Corp.	11/30/72	3,572	Helderberg	NFW	Oriskany test in highly folded Valley and Ridge province.
96	Indiana	1 Kermit Mellott James Drilling Corp. Agent	1/ 7/73	7,695	Helderberg	DPW	Oriskany test on Chestnut Ridge anticline.
95		1 Oaks Point Realty Co. Peoples Natural Gas Co. 3 Alta Wissinger	5/ 6/73	7,735	Helderberg	DPW	Oriskany test on western flank of Richmond anticline.
86	Jefferson	Earl H. Linn, et al 1 Mars Co. UNG Co.	6/25/73	7,711	Queenston	DPW	Silurian test on Smethport anticline. Oriskany absent.

67	McKean	Federal Oil and Gas Co. 1 Onofrio	11/24/73	4,385	Oriskany	DPW	Oriskany test in area of gas shows from Oriskany.
65		Felmont Oil Corp. 4 Kewanee Oil Co. Earl H. Linn, et al 1 Pa. Gas-Texas Gulf	10/ 8/73 2/ 2/73	4,097 5,450	Helderberg Lockport	EXT DPW	Defined northeastern extension of Oriskany Corydon field. Upper Silurian test at south end of Bradford anticline.
69		Sulphur Earl H. Linn, et al 1 UNG-Manor Real Est.	12/21/72	6,787	Lockport	DPW	Upper Silurian test on Smethport anticline, Oriskany absent.
80	Mercer	The Mars Company X-167 David J. Croskey	10/17/72	5,660	Queenston	NFW	Test through Silurian in rank wildcat area.
72	Potter	Columbia Gas Trans. Corp. 2 North Penn	12/ 5/72	6,843	Bass Island	NFW	Oriskany test on Sabinsville anticline, Oriskany absent.
71		Columbia Gas Trans. Corp.	11/18/72	6,144	Bass Island	NFW	Oriskany test on Harrison anticline, Oriskany absent.
74		1 North Penn Gas Corp. Columbia Gas Trans. Corp.	1/11/73	6,733	Bass Island	EXT	Test of Oriskany northeast of Ole Bull Oriskany gas pool.
70		1 Pa. Tract 174 Earl H. Linn	1/ 9/73	6,160	Helderberg	NFW	Oriskany test on south flank of Hebron anticline, Oriskany absent.
73		1 Hammernmill Paper Co. Lee E. Minter	9/16/73	6,977	Helderberg	NFW	Oriskany present, shifting "no sand line" to the northwest.
97	Somerset	2 North Penn Gas Amoco Production Co. 1 E. H. Weiner	6/29/73	9,800	Oriskany	NFW	Test on northern end of Centerville dome, Oriskany faulted.
79	Susquehanna	Shell Oil Company 1 H. Wesley Pease Unit	10/ 7/73	8,534	Silurian Salt	NFW	Upper Silurian test in rank wildcat area of northeastern Pennsylvania.
76	Tioga	Amoco Production Co. 1-A S. & S. Coal Co.	1/ 3/73	10,300	Queenston	NFW	Silurian test in rank wildcat area.
75		Consolidated Gas Sup. Corp. Wn-1282, Pa. Tract 195	8/24/73	7,315	Helderberg	NFW	Oriskany test on south flank of Wellsboro anticline.
2	Warren	Floyd A. Gearhart 1 Emerson Spicer	11/11/72	827	Glade	NFW	Glade test east of main producing area.

Table 9. Production and Reserves in Pennsylvania, 1973

		Production			Reserves		
		1973	1972	% Change to 12/31/73	1973	1972	% Change
Oil (1,000 bbls.)	Penna. Grade	3,206	3,363	-5	38,837	36,743	+ 6
	Corning Grade	76	78	-3	776	602	+30
	TOTAL OIL	3,282	3,441	-5	39,613	37,345	+ 6
	Natural Gas Liquids (1,000 bbls.)	76	82	-7	659	735	-10
Gas (MMcf)	Shallow	66,713	61,838	+7	-	-	-
	Deep	11,801	12,120	-3	-	-	-
	TOTAL GAS	78,514	73,958	+6	1,494,381*	1,406,948*	+ 6
Stored Gas					647,041	606,941	+ 7

\* Stored Gas Included



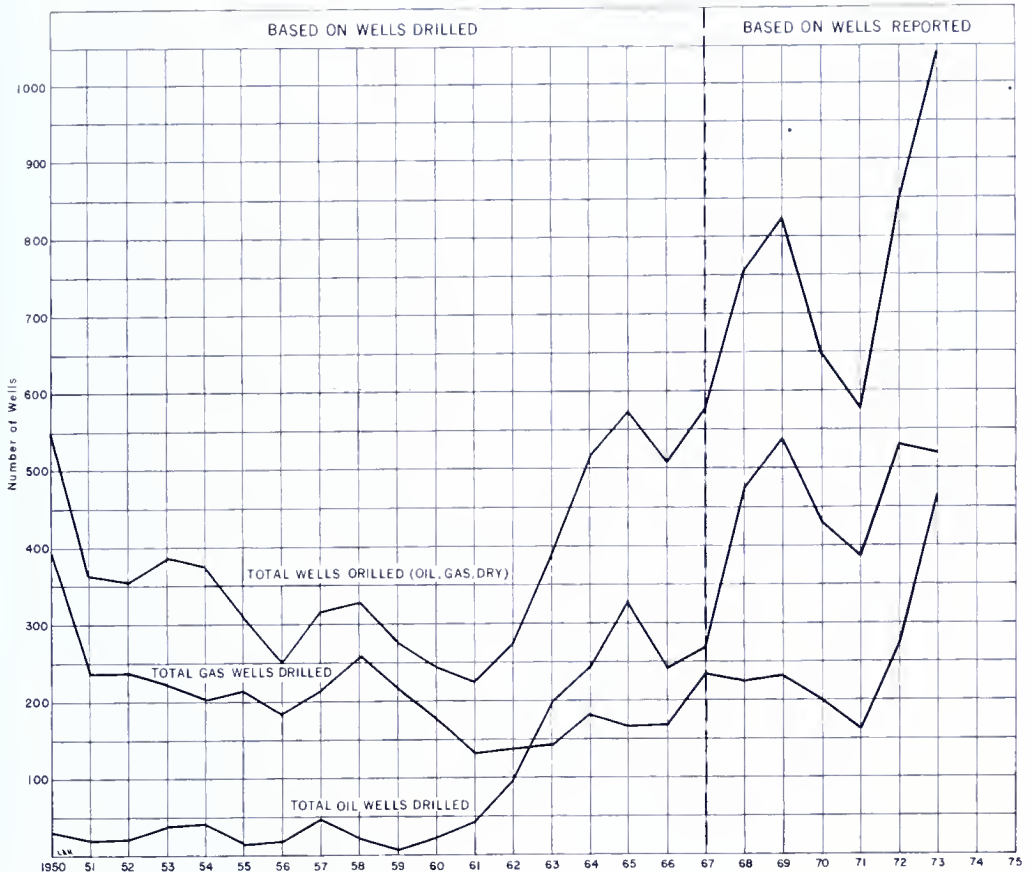


Figure 9. Shallow well activity, 1950-1973.

Table 10. Average Daily Oil Production

District	1973	1972	% Change
Bradford Field (Penna. portion only) . . . . .	5,146	4,912	+ 5
Middle and Southwestern . . . . .	3,638	4,288	-15
Medina Corning . . . . .	208	214	- 3
<b>TOTAL . . . . .</b>	<b>8,992</b>	<b>9,414</b>	<b>- 5</b>

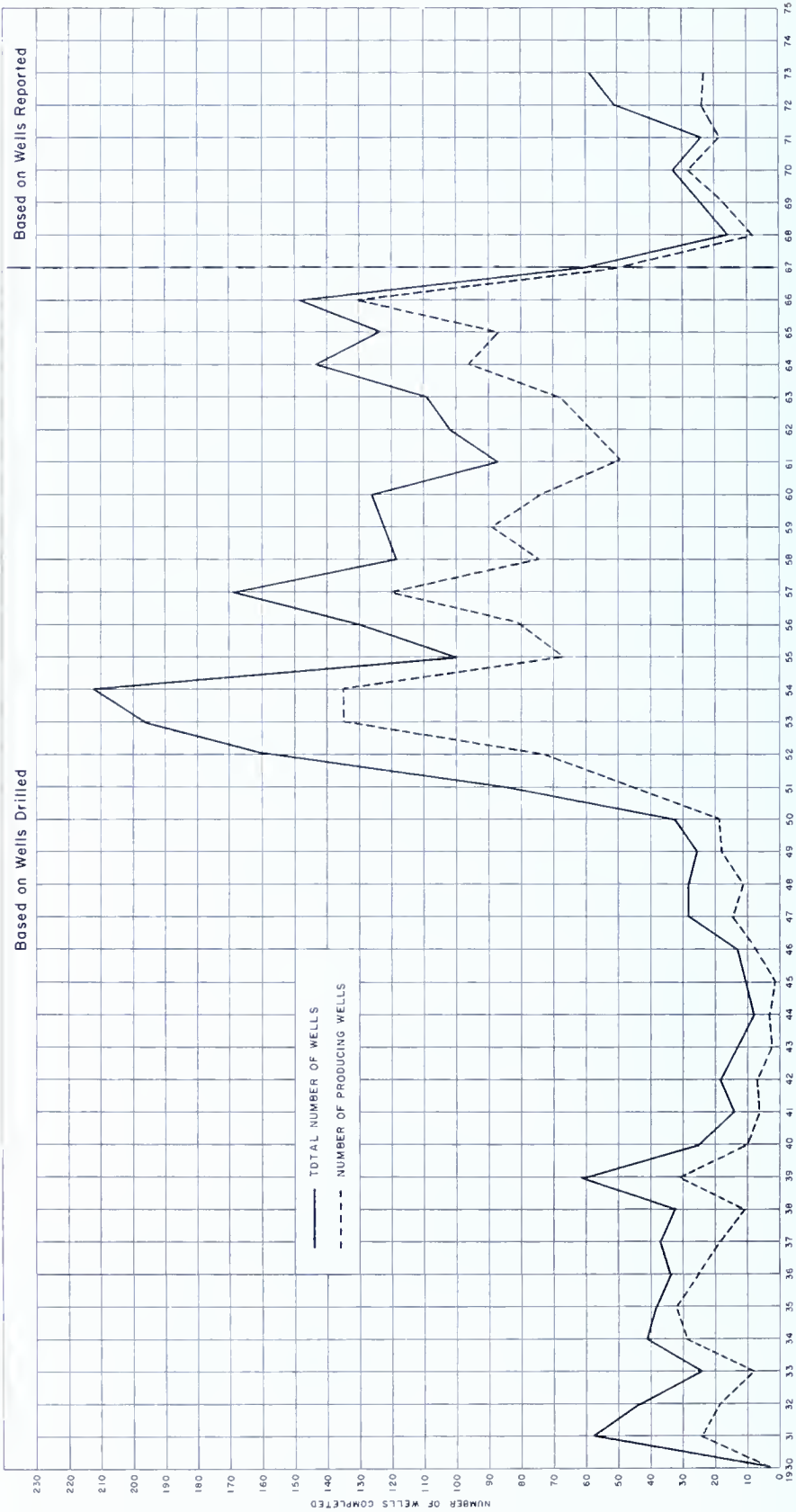


Figure 10. Annual rate of deep sand exploration and development, 1930-1973.

Table 11. Oil Wells and Crude Oil in Pennsylvania by Counties, 1972\*

County	1972 Crude oil production (bbls.)	Number of producing oil wells as of 12/31/72
Allegheny	68,069	231
Armstrong	8,793	76
Beaver	5,643	60
Butler	85,726	1,414
Clarion	21,124	522
Crawford	83,499	458
Elk	25,646	77
Fayette	111	2
Forest	97,619	856
Greene	32,803	277
Jefferson	1,370	131
McKean	1,785,975	13,711
Mercer	970	93
Potter	12,025	189
Venango	551,358	9,501
Warren	548,245	4,453
Washington	112,024	545
Total	3,441,000	32,596

\* Compiled by the Department of Commerce, Bureau of Statistics

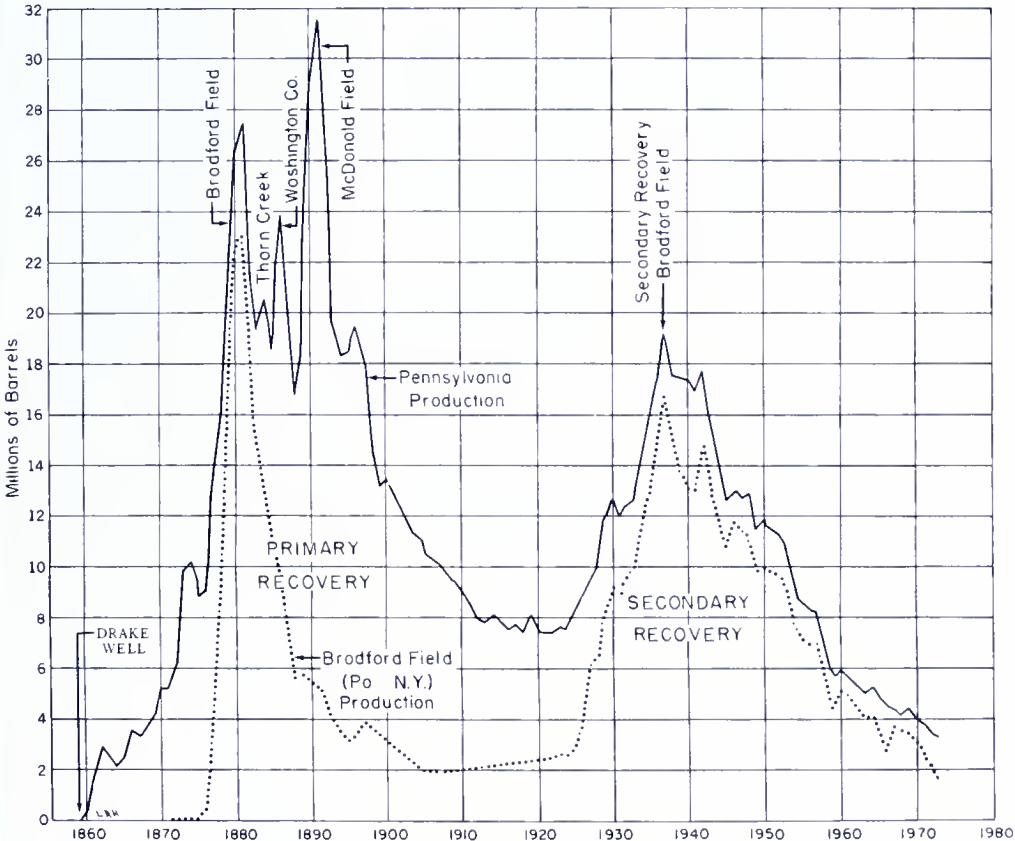


Figure 11. Annual production of crude oil in Pennsylvania.

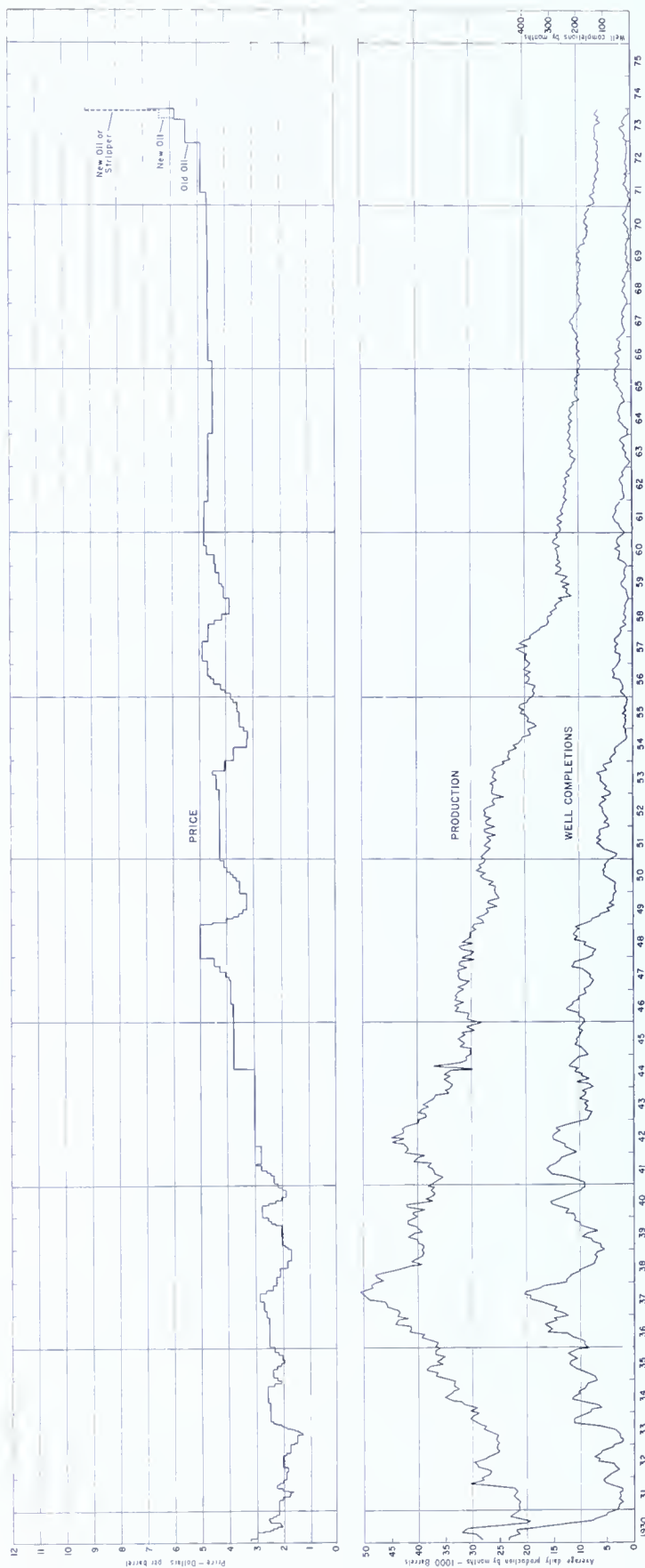


Figure 12. Crude oil prices, production and completions, Bradford District.

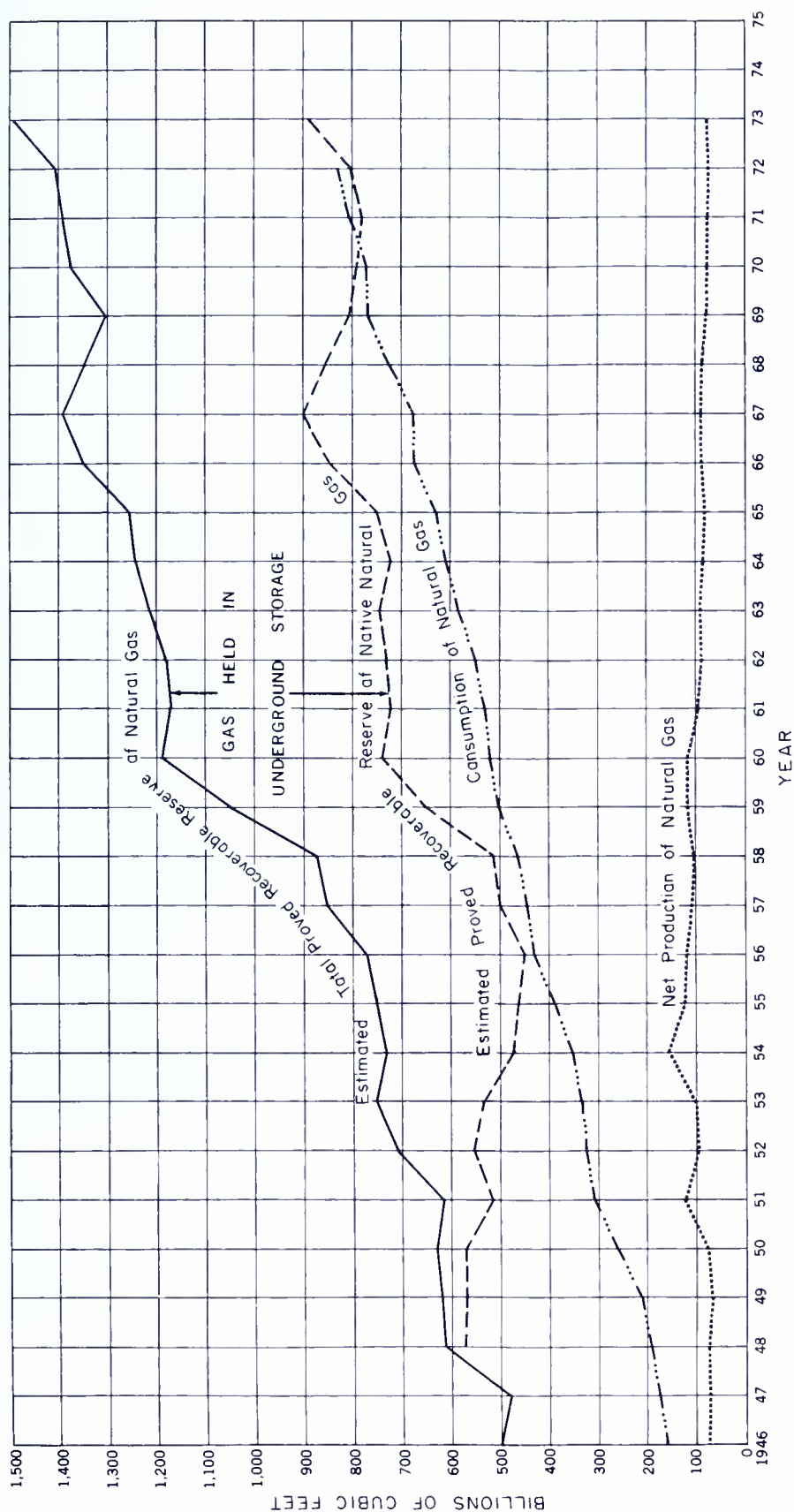


Figure 13. Production, consumption and reserves of natural gas in Pennsylvania.

Table 12. Deep Gas Production in Pennsylvania, 1973

County	Field	Pool	Discovery Date	Cumulative Production at End of 1972 (In Mcf)	Production 1973 (In Mcf)	Cumulative Production at End of 1973 (In Mcf)	Status of Field or Pool at End of 1973
Armstrong	Goleenville* Roaring Run*	Snyderville Roaring Run Oriskany	10/23/70	58,354	20,449	78,803	Producing
Bedford	Artemus	TOTAL Artemus	12/14/70 7/30/63 7/30/63	465,977 2,434,000 1,608,000	806,944	1,272,921 2,434,000 1,608,000	Producing Gas storage and abandoned Converted to gas storage 1973
	Five Forks	Pennland	8/28/64 6/21/62	826,000 15,113,000		826,000 15,113,000	Abandoned Converted to gas storage 1973
Cambria	Purcell Patton	Burley Pindleton	12/14/57 1/15/69 6/30/69	3,125,000 1,538,674	646 9,556 1,154,586	3,125,646 9,556 2,693,260	Producing Producing Producing
Cameron	Canoe Run East Emporium		8/24/73 11/18/71				Shut-in Shut-in
Cameron & Elk	Whippoorwill		7/10/61	14,759,000	206,000	14,965,000	Producing
Cameron, Elk, Jefferson, Clearfield and Indiana	Punxsutawney* Driftwood	TOTAL Benezette Driftwood Boone Mt. DuBois Sabula Helvetia Reed- Decmer Rockton Sykesville Hicks Run	9/15/51 1/ 5/53 9/15/51 9/18/58 1/ 6/60 8/26/63 5/11/60 5/ 9/55 12/ 1/53 2/25/55 11/10/60 6/ 7/56 3/30/73	475,861,000 244,579,000 101,642,000 849,000 124,710,000 4,081,000	2,704,000 994,000 791,000 18,000 852,000 49,000	478,565,000 245,573,000 102,433,000 867,000 125,562,000 4,130,000	Producing Producing Producing Producing Producing Producing Shut-in
Clearfield	West Decatur						

Clinton & Potter .....Leidy	<i>TOTAL</i> Ole Bull	1/ 9/50 1/ 9/59	160,106.047 5,306.015	49,605 49,605	160,155,652 5,355,620	Gas storage and producing Producing
Crawford & Erie .....Conneaut	<i>TOTAL</i> Bushnell- Lexington Indian Springs Kastle Lundys Lane Pierce	2/11/57 12/31/58 9/11/57 7/14/62 11/ 9/61 12/31/58	30,183.524 13,803.456 11,004.640 2,709.915 1,565.844 723.938	1,923,726 530,968 1,075,538 158,126 126,985 32,109	32,107,250 14,334,424 12,080,178 2,868,041 1,692,829 756,047	Producing and abandoned Producing and abandoned Producing Producing Producing Producing
Elk .....	Benzinger Horton	11/ 7/72 9/20/73				Shut-in Shut-in
Erie .....	Bull Reservoir Burgess Corry McKean Meade	9/17/72 10/17/60 4/29/47 5/20/53 1/19/73 8/23/46	145,841 1,048,578 194,878 4,923,383	4,600 5,252 5,252 63,274 687	150,441 1,053,830 200,130 63,274 4,924,070	Shut-in Producing Gas storage and producing Producing Producing Oriskany gas storage [1 producing Medina well]
Fayette .....	Ohiopyle Sandy Creek*	12/28/59 8/ 8/63 8/ 8/63 6/31/69 10/31/61 3/24/38 3/24/38 5/ 9/42	3,908,197 541,531 393,788 147,743 2,528,655 42,604,125 21,054,642 21,522,333	90,102 34,675 18,274 16,401 698,964 153,141 68,441 84,700	3,998,299 576,206 412,062 164,144 3,227,619 42,757,266 21,123,083 21,607,033	Producing Producing Producing Producing Producing and abandoned Producing Producing
Indiana .....	Cherry Hill*	1/ 9/63 7/11/63	2,766,681	46,847	2,813,528	Producing
	Jacksonville Nolo Strongstown	9/21/56 9/30/56 12/20/69	28,131,131 13,278,391	282,923 67,169	28,414,054 13,345,560	Producing Producing Shut-in 1971
Jefferson .....	Big Run*	6/30/65	44,198,000**	1,090,000	45,288,000	Producing
McKean .....	Corydon	9/ 8/72				Shut-in



Table 12. (Continued)

County	Field	Pool	Discovery Date	Cumulative Production at End of 1972 (In Mcf)	Production 1973 (In Mcf)	Cumulative Production at End of 1973 (In Mcf)	Status of Field or Pool at End of 1973
Mercer	Henderson Wheatland	Kilgore	10/26/66 7/24/63	153,149	17,977	171,126	Production not available
Potter	Ulysses	New Field	10/ 2/39 4/ 2/62 }	3,670,857	112,261	3,783,118	Producing
Somerset	Boswell	TOTAL	11/11/58	10,714,864	143,881	10,858,745	Producing
		Boswell	11/11/58	9,802,612	120,999	9,923,611	Producing
		Snyder	6/16/60	912,252	22,882	935,134	Producing
Venango	Barkeyville	Duncan	4/ 5/73				Shut-in
	Wesley	Irwin	12/ 1/72				Shut-in
Warren	Sugar Grove	Pettigrew	5/29/70				Production not available
Washington	Daniels Run*	Glyde	9/ 6/61	92,211	10,615	102,826	Producing
Westmoreland	Blairsville*	Kahl	10/23/62	8,947,760	306,782	9,254,542	Producing
	Latrobe*	Dry Ridge	8/25/46	5,042,852	125,004	5,167,856	Producing
	Jacobs Creek*	Bailey	12/26/61	1,405,143	120,104	1,525,247	Producing
	Lycippus	TOTAL	8/17/49	6,136,277	78,900	6,215,177	Producing and abandoned
		St. Boniface					
		Chapel	9/13/56	5,396,849	78,900	5,475,749	Producing
	Murrysville*	TOTAL	11/ 3/1878	518,241	53,714	571,955	Producing and abandoned
		Duquesne	8/ 8/65	389,314	53,714	443,028	Producing
		Sloan	10/22/63	128,927			Abandoned
Westmoreland & Somerset	Johnstown	TOTAL	5/16/57	23,853,632	1,267,186	25,120,818	Producing and abandoned
		Baldwin	5/22/60				
		Beck	5/16/57	8,295,917	506,104	8,802,021	Producing and abandoned
	Seven Springs	Williams	2/14/58	15,557,715	761,082	16,318,797	Producing
		TOTAL	12/15/58	6,963,590**	151,799	7,115,389	Producing and abandoned
		Blair	12/ 5/58				
		Tunnel	3/10/65	5,693,112**	125,635	5,818,747	Producing
		Seven Springs	8/ 3/66	558,055	26,164	584,219	Producing

\* "Shallow" gas production of field not shown

\*\* Correction



## Oil and Gas Prices

Crude oil prices for the year are shown in Table 13. The average well-head price paid for intrastate natural gas during the year was about 46 cents per Mcf. The average price for interstate natural gas ranged from 32 to 45 cents per Mcf. The trend is to increase the price of gas which must be done if an increase in the exploratory effort is to take place. New higher gas prices are about to be announced by the public utility companies.

**Table 13. Crude Oil Prices per Barrell, Pennsylvania, 1973**

	Pennsylvania Grade Crude					
	All Oil**		New Oil	New Oil or Stripper***		
	1/1/73	8/20/73	9/1/73	12/1/73	11/1/73	12/1/73
Bradford District	\$5.48	\$5.83	\$6.47	\$7.47		\$9.17
Middle District	5.20	5.55	6.10	7.10		8.80
Southwest District	4.77	5.12	5.95	6.95		8.65
	Corning Grade Crude					
						12/19/73
Crawford and Erie Counties	\$3.82	\$4.17	\$5.17	\$6.17	\$8.52*	\$10.00

\* New oil \$8.52 effective 11/1/73; Stripper \$8.52 effective 11/16/73.

\*\* Old oil was increased \$1.00 a barrel in all districts on 12/19/73 from what is shown under 8/20/73 above.

\*\*\* Stripper well is one that produces 10 barrels or less per day.

## Land Sales

At the end of 1973, the Pennsylvania Game Commission had 37 active leases totaling 22,796 acres; there were 48 wells producing on 30 of the above leases and 1 dry hole drilled. A total of 13,744 acres of Commission land was leased during the year.

In 1973 ten tracts of State Forest or Park lands were leased for the exploration and development of oil and gas. From the leasing of these tracts which are located in Elk, Cameron, Potter and Somerset Counties, the Department will receive a first-year rental bonus of \$215,326 for 17,600 acres. The average bonus per acre received from the competitively bid tracts was \$12.41.

Rent and royalty payments relative to oil and gas exploration and development from State Forest and Park lands resulted in a total income of \$617,414.

Royalty payments for the year amounted to \$123,032 for 2,083 MMcf of gas produced from State lands, while rental payments totaled \$494,382 for tract rentals, gas storage, pipeline rights of way, compressor and pumping stations and seismic surveys.

On October 1, 1973 the Department put under lease 1,732 acres of land in the Buchanan State Forest, Mann and Southampton Townships, Bedford County, for the Five Forks gas storage field.

At the end of the year, 249,408 acres of State Forest and Parks lands were under lease for oil and gas exploration and development. This figure includes 60,841 acres in gas storage.

### Geophysical Activity

The Department of Environmental Resources issued eight Seismic Permits to industry to conduct subsurface studies to evaluate our lands for possible oil and gas exploration. These permits were located in Bedford, Centre, Clearfield, Clinton, Fayette, Lycoming, Potter and Tioga Counties.

Seismic activity was down from the 263 crew-weeks during 1972 to 161 crew-weeks in 1973 with most of the activity being Vibroseis. The total cost of this seismic work was about \$2,400,000. The seismic surveys were made in Allegheny, Bedford, Bradford, Blair, Butler, Cambria, Cameron, Centre, Clarion, Clearfield, Clinton, Elk, Fayette, Jefferson, Lackawanna, Lycoming, McKean, Pike, Potter, Somerset, Sullivan, Venango, Washington, Wayne, Westmoreland, and Wyoming Counties, 26 of the 67 counties in the Commonwealth.

### 1973 Highlights

There were more discoveries in Pennsylvania during 1973 than in any other year since 1950, when the first of this series of development reports was published. All of the 23 discoveries in 1973 were gas.

Of the 23 discoveries, the McKean field discovery well in Erie County had the highest initial open flow of all the discoveries during the year with 15,000 Mcf of gas per day from the Oriskany (Lower Devonian) sandstone. The West Decatur field, whose discovery well in Clearfield County had an open flow of 2,196 Mcfgpd, could develop into a sizable Oriskany field. The two Medina (Lower Silurian) gas discoveries in southwestern Venango County have opened an area to possible Medina production from Lake Erie to a line running from the northwest corner of Beaver County to the northeast corner of Warren County. Since the discoveries, a large part of this area has been leased.

The Grampian shallow gas field discovered in 1972 had 4 development and 4 outpost wells drilled in the field during 1973.

Two other wells were significant. The #1 UNG Stackpole well in Elk County found gas in the Helderberg (Lower Devonian), discovering the Benzinger field. This is the first well in the State to produce gas solely from the Helderberg. Another Elk County well, the #1 Pennsylvania Game Commission, found gas in the Bass Island (Lower Devonian), discovering the Boot Jack pool in the Horton field. This is the first gas well in the State producing only from the Bass Island.

At the end of 1973 two Cambrian tests were being drilled. The #1 Dewey in Gaines Township, Tioga County, is a 15,300-foot test. In Middle Creek Township, Somerset County #1 L. Svetz is a 20,500-foot test.

## INDUSTRY RELATED ACTIVITIES

### Subsurface Base Maps

Twenty-one base maps (Figure 14) showing locations of oil and gas wells and the outlines of the oil and gas fields are now available. Each base map encompasses four 15-minute topographic quadrangles and is at the same scale (1 inch equals 1 mile). A five-minute grid, quadrangle names, county boundaries, and major rivers and towns make up the background of the base map. All deep wells known and all shallow wells on record with the Pennsylvania Geological Survey are located, and the status (dry, oil producing, gas producing, etc.) is shown by symbol. Deep wells (Tully Formation or deeper) are differentiated and elevation and total depth are shown. Symbols indicate the availability of geophysical log and sample data on open file in the Survey's Oil and Gas Division office in Pittsburgh. An index map with the legend shows the outlines of oil and gas fields within the mapped area, thus indicating areas of extensive pre-1956 drilling. A listing of the field names is also included.

Paper prints of the base maps can be obtained by writing to the State Book Store, P. O. Box 1365, Harrisburg, Pennsylvania 17125. The cost of each base map is \$0.50, plus a 6 percent sales tax to Pennsylvania residents. A check for the appropriate total amount made out to the Commonwealth of Pennsylvania must accompany the order. When ordering please specify the map number.

A cross index of state permit numbers with quadrangle map numbers used on the base maps is available from the Pittsburgh Branch of the Pennsylvania Geological Survey, 1201 Kossman Building, Stanwix Street, Pittsburgh, Pennsylvania 15222. This index is arranged by quadrangles. Please specify the quadrangle when requesting this literature. Base maps

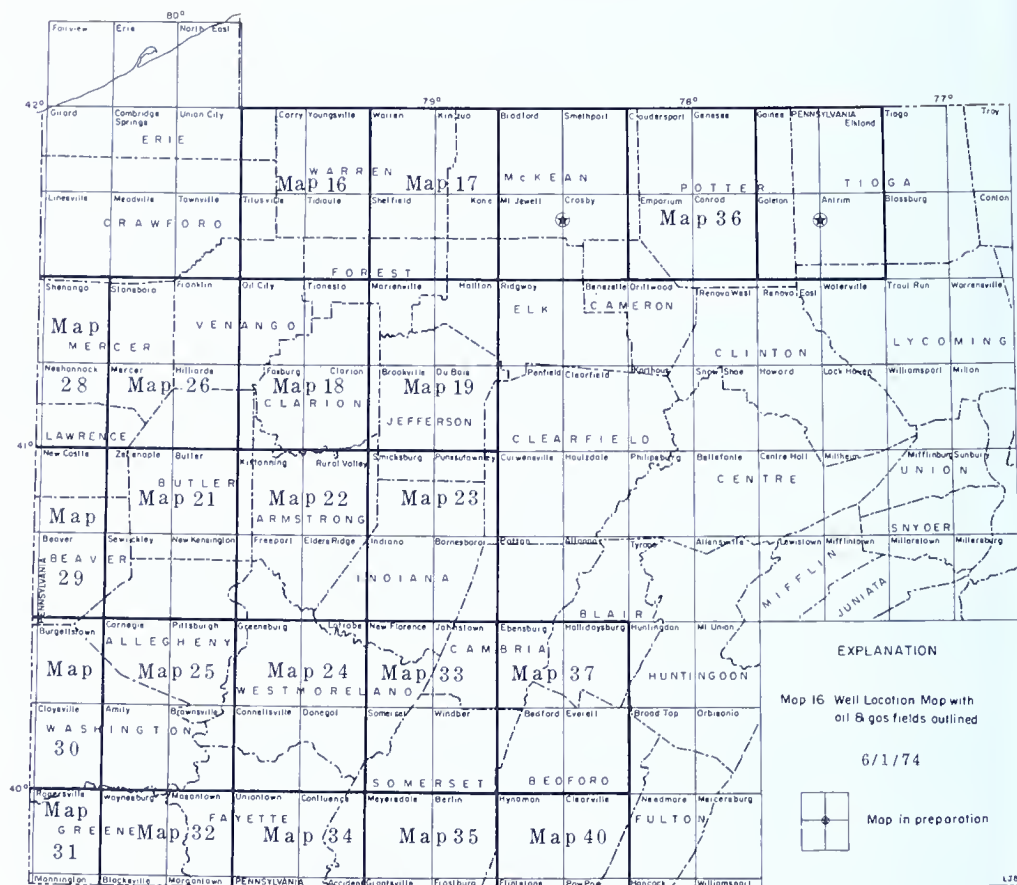


Figure 14. Index of available subsurface base maps.

are updated every six months. Maps now available were updated as of June 1, 1974.

### Open-File Reports

The following reports are on open file (OF) and may be examined at the Oil and Gas Division office of the Bureau of Topographic and Geologic Survey in Pittsburgh. Copies of these reports may be purchased for the cost of duplication.

OF 1. *Surface to Middle Devonian (Onondaga) Subsurface Stratigraphy, Part 1.*

OF 2. *Principal natural gas pipelines of Pennsylvania. Principal crude oil and product pipelines of Pennsylvania, 1:500,000 maps.*

- OF 3. *Deep sand exploration and gas developments in Pennsylvania, 1:250,000 map in 6 parts.*
- OF 4. *Salina or equivalent and deeper penetrations of Pennsylvania, 1:500,000 map.*
- OF 5. *Tully and deeper formations, brine analyses of Pennsylvania, chart and 1:500,000 map.*
- OF 6. *Stratigraphic framework of the Greater Pittsburgh area, Parts 1 and 2.*
- OF 8. *Structure, geologic, and Pittsburgh coal overburden maps of the Greater Pittsburgh area, 1:24,000 map.*

### **PART III. SUMMARIZED RECORDS OF DEEP WELLS REPORTED IN 1973**

The information in the following tables has been compiled mainly from drillers' logs and location plats received from the Oil and Gas Division of the Bureau of Land Protection and Reclamation. Other sources are Petroleum Information Corporation (PI), geophysical logs received by the Pennsylvania Geological Survey, and personal communications with oil and gas operators. The identification numbers in Table 14 refer only to well location numbers on Figure 8 of this report. The more significant numbers are the permit numbers by which the wells are filed with the Bureau of Land Protection and Reclamation and the unique quadrangle numbers by which the Survey files the wells and locates them on 15-minute quadrangle maps.

A single asterisk appearing on a log indicates that all formation tops and total depths were picked from a geophysical log. A log without an asterisk means that the formation tops and total depths are from the driller's log or PI. Where a double asterisk appears, the 7½-minute quadrangle name and location are given. A plus sign appearing on a log indicates that all formation tops and total depths were picked from sample descriptions. These tables are listed alphabetically by county and by name of well. The elevations are either Kelly bushing (KB) or ground (GR).

The producing depth record and the drilling depth record still stand at 11,458 feet in the Tuscarora (Lower Silurian) sandstone and 18,834 feet in the Upper Cambrian, respectively.



Table 14. Summarized Record of Deep Wells Reported in 1973

MAP NUMBER	COUNTY	Permit Number	Armstrong 1453	Armstrong 1453	Armstrong 1482	Bedford 46	Bedford 47	Bedford 49	Bedford 51	Bedford 50	Bedford 45	Bedford 48
		NAME OF WELL	Canterbury Coal #1	John Chambers #1	Pascal Stringer #1	Emma Davis Heirs #2	Emma Davis Heirs #2-A	James G. Grigsby #1	Perry Innes #1	Kinser Heirs #1	R. & R. Howsare #1	Helen Roland #1
		OPERATOR	Westrans Petroleum	J & J Enterpr., Inc.	J & J Enterpr., Inc.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.
		TOWNSHIP	Kiskiminetas	Kiskiminetas	Kiskiminetas	Monroe	Monroe	Monroe	Monroe	Southampton	Mann	Monroe
		QUADRANGLE	Elders Ridge 0 44	Elders Ridge 0 46	Elders Ridge 0 45	Clearville H 34	Clearville E 36	Clearville E 38	Clearville E 40	Clearville H 37	Clearville G 35	Clearville E 39
		LATITUDE	27,700 ft. S 40°40'	20,200 ft. S 40°40'	22,250 ft. S 40°40'	2,250 ft. S 39°50'	30,300 ft. S 39°55'	28,100 ft. S 39°55'	22,300 ft. S 39°55'	4,350 ft. S 39°50'	6,750 ft. S 39°50'	25,200 ft. S 39°55'
		LONGITUDE	11,250 ft. W 79°25'	11,400 ft. W 79°25'	6,900 ft. W 79°25'	22,050 ft. W 78°20'	20,950 ft. W 78°20'	20,600 ft. W 78°20'	18,050 ft. W 78°20'	23,350 ft. W 78°20'	900 ft. W 78°25'	19,900 ft. W 78°20'
		DATE COMPLETED	1-1-73	5-24-73	2-5-73	11-17-72	2-13-73	3-21-73	5-5-73	1-4-73	11-1-72	6-11-73
		ELEVATION	1433 KB	1506 KB	1431 KB	1532 GR	1574 GR	1508 GR	1417 GR	1527 GR	1316 GR	1488 GR
		TULLY	*6590-6700	6810-6840	*6659-6780							
		ONONOAGA	7082-7170	7320-	7205-7220	5515-5645	*5649-5754	*5539-5649	*5730-5843	*5486-5579	5346-5441	*5630-5751
		CHERT	7170-7240	7337-	7220-7368							
		ORISKANY	7240-7252 Gas 7241	7482- Gas	7368-7381 Gas	5648- Gas 5705	5759-5937 Gas 5784	5656-5835 Gas 5673	5848-6007 Gas 5940	5587- Gas 5645	5446-5640 Gas 5530	5756-5960 Gas 5786
		HELOERBERG	7252-	7499-	7381-		5937-	5835-	6010- S.W. 6028			5960-
		SALINA										
		GUELPH-LOCKPORT										
		CLINTON										
		MEDINA										
		QUEENSTON										
		TOTAL DEPTH	7316	7576	7450	*5849	5990	5937	6145	5687	5655	6061
		DEEPEST FORMATION REACHED	Heiderberg	Heiderberg	Heiderberg	Oriskany	Heiderberg	Heiderberg	Heiderberg	Oriskany	Heiderberg	Heiderberg
		RESULT	7,500 Mcf AF 3,700 psi/19 days Roaring Run Pool	1,500 Mcf AF 3,800 psi/48 hrs. Roaring Run Pool	150 Mcf Nat. 1,600 Mcf AF 3,650 psi/48 hrs. Roaring Run Pool	2,110 Mcf Nat. 1,600 psi/24 hrs. Gas Storage Artemas-Five Forks Field	Est. 500 Mcf Natural Gas Storage Artemas-Five Forks Field	7,320 Mcf Nat. Gas Storage Artemas-Five Forks Field	Gas Storage Artemas-Five Forks Field	12,450 Mcf Nat. 24,294 Mcf AF 1,500 psi/24 hrs. Gas Storage Artemas-Five Forks Field	24,294 Mcf Nat. 53,272 Mcf AF 1,650 psi/24 hrs. Gas Storage Artemas-Five Forks Field	2,220 Mcf Nat. Gas Storage Artemas-Five Forks Field

## SUMMARIZED RECORDS

MAP NUMBER		COUNTY	Permit Number	Bedford 43	Bedford 8	Bradford 9	Cameron 44	Cameron 50	Cameron 49	Cameron 51	Cameron 54	Clarion 469
NAME OF WELL		Roy C. Shipley #2	Rule S. Taylor, et al #1	Henry Cominsky #1	Ralph Kissell Unit #1	Emporium Water Co. Wn-1189	Emporium Water Co. Wn-1283	Pa. Tract 189, Wn-1283	Pa. Tract 211, Wn-1300	Omni-UNG #1 - 284		
OPERATOR		Columbia Gas Trans. Corp.	Texas Eastern Trans. Corp.	Shell Oil Co.	Shell Oil Co.	Consol. Gas Supply Corp.	Consol. Gas Supply Corp.	Consol. Gas Supply Corp.	Consol. Gas Supply Corp.	Earl H. Linn Patrick Petroleum		
TOWNSHIP		Mann	Napier	Herrick	Asylum	Portage	Lumber	Shippen	Orifwood A 121	Emporium H 35	Lumber	Ashland
QUADRANGLE		Clearville E 41	Bedford E 4	Towanda E 6	Monroeton B 3	Emporium H 30	Emporium G 36	Orifwood A 121	Orifwood H 120	Oil City I 2		
LATITUDE		9,000 ft. S 39°50'	23,600 ft. S 40°10'	7,300 ft. S 41°50'	18,550 ft. S 41°45'	11,500 ft. S 41°35'	19,400 ft. S 41°35'	8,050 ft. S 41°30'	24,800 ft. S 41°30'	1,300 ft. S 41°20'		
LONGITUDE		2,500 ft. W 78°25'	12,650 ft. W 78°35'	2,700 ft. W 76°15'	2,400 ft. W 76°20'	22,650 ft. W 78°05'	5,100 ft. W 78°10'	17,600 ft. W 78°10'	6,000 ft. W 78°05'	10,000 ft. W 79°30'		
DATE COMPLETED		7-15-73	7-11-72	7-7-73	9-1-73	8-4-73	6-30-73	8-24-73	9-27-73	3-14-73		
ELEVATION		1349 GR	1652 KB	1294 KB	1369 KB	1922 GR	1970 KB	1734 KB	2108 KB	1638 KB		
TULLY				*4694-4804	4892-	*5813-5872	*5992-	*6200-6270	*5740-	*4882-4970		
ONONDAGA				6557-6610	6940-7108	6434-6453	6624-	6806-6828	6427-	5190-		
ORISKANY				6830-6939	7400-7507	6463-6473	6641-6678 S.W. 6671	6828-6848 Gas	6445-6497 55G	Absent		
HELDERBERG			70-	6939-7330			6678-	6848-	6497-	5240-		
KEYSER-BASS ISLAND SALINA										5420-		
GUELPH - LOCKPORT BLACK WATER			1405-McKenzie							6320-		
CLINTON			1760-Keefe 1820-Rose Hill									
MEDINA			Tuscarora 2420-3870-Found									
QUEENSTON			Junata 2775-4110-									
TOTAL DEPTH		5730	11,597	7830	7507	6525	6706	6865	6736	6452		
DEEPEST FORMATION REACHED		Oriskany	Gatesburg	Salina	Oriskany	Helderberg	Helderberg	Helderberg	Helderberg	Lockport		
RESULT		22,444 Mcf Nat. 37,549 Mcf AF 1,970 psi/36 hrs. Gas Storage Artemis-Five Forks Field	Trenton-7930 Beekmantown-8967 Mines-10,950 NSOG Abandoned Wildcat	Salt 7705 NSOG Abandoned Wildcat	NSOG Abandoned Wildcat	Dry in Oriskany plugged back-2225 168 Mcf AF 660 psi/36 hrs. in U. dev. sands Dis. Salt Run Pool	5W filled up 4,500'. Abandoned East Emporium Field	1,950 Mcf Nat. 3,100 psi/14 days Oil recovery Canoe Run Field	3 Mcf AF 25 psi/12 days Abandoned Wildcat	NSOG Salt-5640 Abandoned Wildcat		





## SUMMARIZED RECORDS

41

COUNTY	Permit Number	Elk 308	Elk 334	Elk 307	Elk 306	Erie 349	Erie 350	Erie 346	Erie 347	Erie 348	Erie 345
NAME OF WELL		Penn Gas ANF #1-282	Sylvania Corp. (mineral rights) #1	UNG-ANF #1-281	UNG-Stackpole #1-280	A. & E. Freeman #1	Alvin A. Kostak #1	Joseph R. McLaughlin #1	Joseph R. McLaughlin #2	C. & P. Neuburger #1	Joseph Orschek
OPERATOR		Earl H. Linn et.al	Fairman Drilling Co.	Earl H. Linn et.al	Earl H. Linn et.al	Pennsylvania Gas Co.	Pennsylvania Gas Co.	Pennsylvania Gas Co.	Pennsylvania Gas Co.	Pennsylvania Gas Co.	Earl H. Linn et.al
TOWNSHIP		Spring Creek	Ridgway	Jones	Benzinger	McKean	McKean	McKean	McKean	McKean	Northeast
QUADRANGLE		Halliton C 4	Ridgway D 6	Kane I 2	Crosby G 5	Erie G 118	Erie G 119	Erie G 117	Cambridge Spgs. A 24	Cambridge Spgs. A 25	North East F 31
LATITUDE		25,900 ft. S 41°30'	19,600 ft. S 41°25'	10,500 ft. S 41°35'	28,900 ft. S 41°35'	29,900 ft. S 42°05'	27,900 ft. S 42°05'	29,950 ft. S 42°05'	950 ft. S 42°00'	200 ft. S 42°00'	3,300 ft. S 42°10'
LONGITUDE		19,900 ft. W 78°45'	22,600 ft. W 78°40'	1,100 ft. W 78°45'	11,500 ft. W 78°25'	1,350 ft. W 80°10'	2,600 ft. W 80°10'	3,675 ft. W 80°10'	3,700 ft. W 80°10'	6,500 ft. W 80°10'	16,600 ft. W 79°45'
DATE COMPLETED		2-20-73	9-20-73	11-26-72	11-7-72	2-5-73	5-25-73	1-19-73	1-25-73	1-31-73	9-17-72
ELEVATION		1582 GR	2230 KB	2049 KB	1912 KB	980 KB	956 OF	994 K8	1024 KB	973 KB	1430 K8
TULLY		*5450-5490	*5835-	*5482-5510	*5792-5950	*1715-	*1643-	+1685-1770	*1748-1832	*1673-1758	*2025-2090
ONONDAGA	LIMESTONE CHERT	5875-5938	6293-	5914-5946	6302-6349	1936-	1867-	1905-2175	1967-2246	1901-2186	2264-
DRISKANY		absent	absent	absent		2216-2225	2147-2160	2175-Gas	2246-2250	2186-2198 5.W. 2192	2496-2506
HELDERBERG			6359-		6349-Gas 6364	2225-	2160-		2250-	2198-	
KEYSER-BASS ISLAND SALINA			6447-Gas 6502-	6040-							
GUELPH-LOCKPORT									2650-		2978-
CLINTON	IRONDEQUOIT								3089-		3293-
MEDINA	WHIRLPOOL								3116- 3281-		3348-3438 Gas
QUEENSTON									3286-		3470-3484 3484-
TOTAL DEPTH		6055	8202	6310	6462	2274	2175	2187	3323	2237	6059
DEEPEST FORMATION REACHED		Helderberg	Salina	Salina	Helderberg	Helderberg	Helderberg	Oriskany	Queenston	Helderberg	Gatesburg
RESULT		Completed as gas well in upper Devonian sands Dry as Deeper Pool Wildcat	412 Mcf Nat. 531 Mcf AF 2,750 psi/4 days Discovery - Boot Horton Field	83 Mcf Nat. In Upper Devonian Dry Deeper Pool Wildcat M11 Creek Field	4,000 Mcf Nat. 396 Mcf AF 1,800 psi/24 hrs. Benzinger Field	NSOG Abandoned McKean Field	NSOG Abandoned McKean Field	Est. 15,000 Mcf Nat. 808 psi/96 hrs. Discovery McKean Field	55G @ 1296 Abandoned Extension McKean Field	NSOG Abandoned McKean Field	Trenton-5247 Gatesburg-6018 1,214 Mcf AF 1,030 psi/14 days Discovery Bull Reservoir Field

Table 14. (Continued)

MAP NUMBER	84	99	96	95	86	65	67	68
COUNTY	Forest	Fulton	Indiana	Indiana	Jefferson	McKean	McKean	McKean
PERMIT NUMBER	903	5	1877	2038	989	10397	10394	9639
NAME OF WELL	Collins-Clinger #1-290	Kermit Wellott #1	Oaks Point Realty #1	A. S. Hissinger #3	Mars-Jung #1-289	Kewanee Oil #4	Onofrio #1	Penna. Gas, et.al #1-286
OPERATOR	Earl H. Linn et.al	Consol. Gas Supply Corp.	James Drilling Co.	Peoples Natural Gas Co.	Earl H. Linn et.al	Felmont Oil Corp.	Federal Oil & Gas Co.	Earl H. Linn et.al
TOWNSHIP	Kingsley	Belfast	Burrell	E. Mahoning	Heath	Corydon	Corydon	Hamilton
QUADRANGLE	Sheffield G 5	Needmore E 4	New Florence A 21	Smicksburg I 36	Marienville F 3	Kinzua 8 21	Kinzua F 22	Kinzua I 19
LATITUDE	3,650 ft. S 41°35'	7,400 ft. S 39°55'	28,900 ft. S 40°30'	23,150 ft. S 40°50'	28,250 ft. S 41°25'	10,100 ft. S 42°00'	13,100 ft. S 41°55'	19,100 ft. S 41°50'
LONGITUDE	18,650 ft. W 79°10'	9,200 ft. W 78°05'	7,450 ft. W 79°10'	8,300 ft. W 79°00'	850 ft. W 79°00'	3,800 ft. W 78°50'	12,550 ft. W 78°45'	10,500 ft. W 78°45'
DATE COMPLETED	4-4-73	11-28-72	1-7-73	5-6-73	6-25-73	10-8-73	11-24-73	2-2-73
ELEVATION	1605 GR	917 KB	1806 KB	1650 KB	1384 GR	1790 KB	1738 KB	1495 KB
TULLY	*4490-4525	*4740-	6760-	*6805-	*5165-	*3683-3691	3975-	*4044-4052
ONONOAGA	4800-	*3200-3350	*7438-7452	7459-7469	5570-	3998-4075	4300-4355	4450-4495
ORISKANY	absent	3350-3475	7580-7600	7568-7579	absent	4075-S.W.	4355-	4495-4520
HELOERBERG	4850-	3475-	7658-	7579-	5626-			
SALINA	4985-				5760-			4608-
GUELPH-LOCKPORT	5835-				7200-7250			5420-
CLINTON								
MEGANA					7625-			
QUEENSTON								
TOTAL DEPTH	6030	3550	7695	7710	7725	4090	4385	5450
DEEPEST FORMATION REACHED	Lockport	Queenston	Helanderberg	Helanderberg	Medina	Oriskany	Oriskany	Lockport
RESULT	Salt 5230 Abandoned Deeper Pool Wildcat	Salt 5480 I.P. 250 Mcf & 1500' of S.W. AF Abandoned	Abandoned Deeper Pool Wildcat Blacklick Field	P8 to 4000 feet U. Dev. production 2,110 Mcf AF 750 psi/6 days	Abandoned Deeper Pool Wildcat Millstone Field	N50G Abandoned Extension Corydon Field	N50G Abandoned Deeper Pool Wildcat Buck Lick Field	Salt 4892 N50G Abandoned Deeper Pool

## SUMMARIZED RECORDS

COUNTY	Permit Number	McKean	9530	Mercer	66	Mercer	68	Potter	447	Potter	436	Potter	437	Potter	456	Potter	461	Potter	438	Somerses	42
NAME OF WELL		UNG-Manor #1-283	David J. Croskey #X-167	John Jack #1	Hammermill Paper Co. #1	North Penn Gas #1	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	North Penn Gas #2	Pa. Tract #171-A	Pa. Tract #1	Pa. Tract #1	Pa. Tract #1	Earl H. Welmer #1	
OPERATOR		Earl H. Linn et.al	The Mars Co.	United Natural Gas Co.	Earl H. Linn	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Columbia Gas Trans. Corp.	Lee E. Minter, et.al	Consol. Gas Supply Corp.	Consol. Gas Supply Corp.	Columbia Gas Trans. Corp.	Anoco Production		
TOWNSHIP		Sergeant	Delaware	North	Roulette	Keating	Sylvania	Sylvania	Sylvania	Sylvania	Keating	Keating	Sylvania	Sylvania	Portage	Portage	Portage	Stewardson	Millford		
QUADRANGLE		Mt. Jewett B 2	Shenango I 10	Stoneboro I 13	Emporium A 34	Emporium B 33	Emporium C 32	Emporium D 31	Emporium E 30	Emporium F 29	Emporium G 28	Emporium H 27	Emporium I 26	Emporium J 25	Emporium K 24	Emporium L 23	Emporium M 22	Galeton H 32	Meyersdale B 6		
LATITUDE		24,600 ft. S 41°45'	12,650 ft. S 41°20'	25,850 ft. S 41°20'	1,700 ft. S 41°45'	17,650 ft. S 41°45'	19,200 ft. S 41°40'	19,200 ft. S 41°40'	19,200 ft. S 41°40'	19,200 ft. S 41°40'	17,650 ft. W 78°05'	17,650 ft. W 78°05'	2,100 ft. W 78°00'	2,100 ft. W 78°00'	18,900 ft. W 78°00'	18,900 ft. W 78°05'	11,400 ft. S 41°40'	12,150 ft. S 41°35'	3,350 ft. S 40°00'		
LONGITUDE		17,200 ft. W 78°35'	4,000 ft. W 80°15'	7,550 ft. W 80°00'	3,300 ft. W 78°10'	17,650 ft. W 78°05'	2,100 ft. W 78°00'	2,100 ft. W 78°00'	2,100 ft. W 78°00'	2,100 ft. W 78°00'	17,650 ft. W 78°05'	17,650 ft. W 78°05'	2,100 ft. W 78°00'	2,100 ft. W 78°00'	18,900 ft. W 78°00'	18,900 ft. W 78°05'	20,400 ft. W 77°35'	20,400 ft. W 77°35'	22,450 ft. W 79°05'		
DATE COMPLETED		12-21-72	10-18-72	12-13-72	1-9-73	11-18-72	12-5-72	12-5-72	12-5-72	12-5-72	11-18-72	11-18-72	12-5-72	12-5-72	9-16-73	9-8-73	9-8-73	1-11-73	6-29-73		
ELEVATION		2214 KB	1331 KB	1473 KB	2310 KB	2415 KB	2211 KB	2211 KB	2211 KB	2211 KB	2415 KB	2415 KB	2211 KB	2211 KB	2015 KB	2292 KB	2063 KB	2105 KB	2105 KB		
TULLY		*5154-5212	*3628-3670	*3940-3994	*5420-5490	*5454-5500	*5896-5944	*5896-5944	*5896-5944	*5896-5944	*5454-5500	*5454-5500	*5896-5944	*5896-5944	*6110-	*5803-	*5803-	*5640-	*8968-		
DNNDAGA	LIMESTONE	5632-5668	3780-3932	4142-4274	6002-6030	6018-6045	6538-6560	6538-6560	6538-6560	6538-6560	6018-6045	6018-6045	6538-6560	6538-6560	6740-6757	6397-6411	6411-6429	6484-	9134-9358		
CHERT																					
ORISKANY		absent	3932-3958 S.W.	absent	absent	absent	absent	absent	absent	absent	absent	absent	absent	absent	6757-6785	6429-6431	6614-6638	6638-6695	9358-9800		
HELDERBERG		5760-	3958-	4274-											6785-	6431-	6638-6695	6638-6695			
KEYSER-BASS ISLAND SALINA			4103-												6905-6955 6955-	6526-	6695-6733	6695-6733			
GUELPH - LOCKPORT		6757-	4973-556	5096-Gas 5258																	
CLINTON	IRONDEQUOIT		5339-																		
MEDINA	WHIRLPOOL		5420-5601-																		
QUEENSTON			5610-																		
TOTAL DEPTH		6787	5660	5335	6160	6144	6835	6835	6835	6835	6144	6144	6835	6835	6977	6622	6733	9800			
DEEPEST FORMATION REACHED		Lockport	Queenston	Lockport	Heiderberg	Silurian	Bass Island	Bass Island	Bass Island	Bass Island	Silurian	Silurian	Bass Island	Bass Island	Salina	Bass Island	Bass Island	Bass Island	Oriskany		
RESULT		Salt 6042 NSOG Abandoned Ogeer Pool Wildcat	Salt 4290 Abandoned New Field Wildcat	245 Mcf Nat. 454 Mcf AF 1,950 psi/48 hrs. Kilgore Pool	NSOG Abandoned New Field Wildcat	SSG 6138 Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	SSG 6138 Abandoned New Field Wildcat	SSG 6138 Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	NSOG Abandoned New Field Wildcat	SSG Upper Devonian Abandoned New Field Wildcat	NSOG Abandoned Old Bull Extension	NSOG Abandoned Old Bull Extension	Faulted NSOG Abandoned New Field Wildcat		



Table 14. (Continued)

MAP NUMBER	79	75	76	82	Venango 2258	Venango 2252	81		
COUNTY	Susquehanna	Tioga	Tioga	Venango	Venango	Venango	Venango		
Permit Number	6	60	56	2263	2258	2252	2166		
NAME OF WELL	H. Hesley Pease Unit #1	Pa. Tract 195 Wn-1282	5 & 5 Coal Co. #1-A	William F. Duncan #1	Paul L. Hovis #1	Charles F. Mueller #1	Tasa Corporation #1		
OPERATOR	Shell Oil Co.	Consol. Gas Supply Corp.	Amoco Production	Peoples Natural Gas Co.	Peoples Natural Gas Co.	Peoples Natural Gas Co.	Peoples Natural Gas Co.		
TOWNSHIP	Harford	Morris	Morris	Irwin	Irwin	Irwin	Irwin		
QUADRANGLE	Susquehanna G 1	Antrim O 17	Antrim F 16	Hilliards A 5	Hilliards A 4	Hilliards A 6	Hilliards A 3		
LATITUDE	20,250 ft. 5 41°50'	18,150 ft. 5 41°40'	13,600 ft. 5 41°40'	25,900 ft. 5 41°15'	2,500 ft. 5 41°15'	5,350 ft. 5 41°15'	700 ft. 5 41°15'		
LONGITUDE	8,500 ft. W 75°40'	8,650 ft. W 77°25'	13,250 ft. W 77°15'	20,750 ft. W 79°55'	16,750 ft. W 79°55'	16,600 ft. W 79°55'	14,500 ft. W 79°55'		
DATE COMPLETED	10-7-73	8-24-73	1-30-73	4-5-73	3-10-73	2-12-73	12-19-72		
ELEVATION	1248 KB	2055 KB	1284 KB	1468 KB	1523 KB	1473 KB	1486 KB		
TULLY	4420-	*6264	*6252-	*4498-	*4322-	*4305-	*4295-		
ONONAGA	6848-	7226-	7235-7260	4709-4742	4543-	4527-4553	4519-		
LIMESTONE				4742-4836		4553-			
CHERT						absent	4637 (Horizon)		
ORISKANY		7251-	7260-7295	4836-	4669- (Horizon)		4637 (Horizon)		
HELOERBERG	7295-	7285-	7295-			4650-	4637-		
KEYSER-BASS ISLAND SALINA			7500-7580	4925- 5037-	4740- 4852-	4714- 4830-	4706- 4819-		
GUELPH-LOCKPORT				5895-	5659-	5669-	5620-		
CLINTON									
IRONDEQUOIT					5976- 6214-	5930- 6234-	5932- 6116-		
MEDINA			9780-	6372- Gas	6275- Gas	6320- Gas	6180- Gas		
WHIRLPOOL					6390		6334-		
QUEENSTON			10065-	6608-	6442-	6555-	6444-		
TOTAL DEPTH	8534	7312	10,284	6608	6552	6617	6510		
DEEPEST FORMATION REACHED	Salina Salt	Holderberg	Queenston	Queenston	Queenston	Queenston	Queenston		
RESULT	Salt 8454 N50G Abandoned New Field Wildcat	N50G Abandoned New Field Wildcat	N50G Abandoned New Field Wildcat	6,866 Mcf Nat. 5,600 Mcf AF 1,600 psi/5 days Deeper Pool Discovery	2 Mcf Nat. 582 Mcf AF 1,625 psi/7 days Irwin Pool Produced S.W.	556 Nat. 3 Mcf AF 600 psi/1 day Irwin Pool Produced S.W.	2,740 Mcf AF 1,630 psi/9 days Deeper Pool Discovery Irwin		